Medical Library

OCT 18 1943

BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SATURDAY SEPTEMBER 25 1943

TABLE OF CONTENTS

Methods of Artificial Respiration D. G. CORDIER, M.D. 381
Management of Acute Pleural Empyema P. R. ALLISON, F.R.C.S. 383
Ear-Nose-Throat Casualties in the Middle East E. G. COLLINS, F.R.C.S.Ed. 386
Labour with Cardiac Failure: Low Spinal Anaesthesia HAROLD BURTON, B.M. 389
Diet and Cholesterol Concentration in Blood and Bile NANCY GOUGH, B.SC. 390
Misleading Malaria Sir MALCOLM WATSON, M.D. 394

MEDICAL MEMORANDA

Contramine for Herpes. E. S. HAWKES, M.B. 391
Vomiting Sickness in Jamaica. A. A. WRIGHT, M.D. 392

GENERAL ARTICLES AND NEWS

The Public Corporation—II. D. H. KITCHIN 399
R.C.S. President's Address to Fellows 401
Nova et Vetera:
Salerno: its Medical School and its Medical Legends 402
SCOTLAND'S HEALTH 394
DOMICILIARY NURSING SERVICES 401
PREPARATIONS AND APPLIANCES 393
THE SERVICES 408
MEDICAL NEWS 409

REVIEWS

The Dysenteries 392
Dermatology 392
Review of Physiology 393
War Wounds and Injuries 393
Notes on Books 393

OBITUARY

Sir William Wheeler, M.D., F.R.C.S.I. ... 406
Frank Marsh, C.B.E., F.R.C.S. 407

Epidemiology Section 408

LEADING ARTICLES

Pneumokoniosis and Working Conditions in Coal Mines 395
A Stirrup Cup for the Panzers 396

ANNOTATIONS

Chest Surgery Film 397
The Stomach at Work 397
Absenteeism among Women Workers 398
Efficacy of Liver Pills 398

LETTERS AND ANSWERS

Bismuth for Threadworms—Tremors: Diagnosis before Treatment—Frigidity—Noises in Ear—Pruritus Ani—Vitamin C Deficiency in Peptic Ulcer—Treatment of Neurosyphilis—Treatment of Lid and Corneal Burns—Intermittent Claudication—Treatment of Schizophrenia—The Compressed Curriculum—Difficult Skin Case 409–10

SUPPLEMENT

Insurance Acts Committee Report 45
CORRESPONDENCE 47
H.M. FORCES APPOINTMENTS 50
POSTGRADUATE NEWS 50

CORRESPONDENCE

Early Recognition of Cancer. MALCOLM DONALDSON, F.R.C.S. 402
Perforated Gastric Ulcer. G. GREY TURNER, F.R.C.S. 403
X Rays and the Colon. DENYS HALLETT, M.B. 403
Stilboestrol for Prostatic Enlargement. J. A. L. MAGEE, M.B. 403
H 11 for Cancer. G. W. BLOMFIELD, F.R.C.S.; IVOR RADNOR, M.B. 403
The Mastoid and D. and V. in Infants. P. W. LEATHART, M.B. 403
Health and Tonsillectomy. W. B. MCKELVIE, M.D. 404
Artificial Insemination. L. J. BENDIT, M.D.; C. R. LANE, D.M. 404
Induced Pneumoperitoneum: a Fatal Case. C. NEWLYN SMITH, M.B. ... 404
Specialist Courses for Service M.O.s. D. STAFFORD-CLARK, M.B. 404
Refresher Courses for Service M.O.s. C. GILES, M.B. 405
Public Opinion and Health Services. W. N. LEAK, M.D. 405
Unity in the Profession? DONALD WATSON, F.R.C.S. 405
Hospital Posts under Local Authorities. EDGAR W. THOMAS, F.R.C.S.Ed. 405
Fitness for Factory Work. KENNETH MACLEOD, M.B. 406
Masseurs in the R.A.F. Medical Service. D. MCLAREN, M.B. 406

BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.

No. 4316, WEEKLY, PRICE 1/6

Copyright

REGISTERED AS A NEWSPAPER

Reduce healing time of

IMPETIGO CONTAGIOSA

The fluid from the vesicles of impetigo is capable of reproducing similar lesions on contact with uninfected skin. For this reason it is most important that it should be prevented from coming into contact with the uninvolved skin. 'Alulotion' contains 5 per cent. Ammoniated Mercury together with Kaolin and Aluminium Hydroxide. The adsorptive base is miscible with the vesicular exudate and forms a firmly adherent crust, thus preventing transfer of the vesicular contents to new areas and spreading of the infection.

'ALULOTION' BRAND REGD

AMMONIATED MERCURY with KAOLIN

JOHN WYETH & BROTHER LIMITED

Clifton House, Euston Road, London, N.W.1

(Sole distributors for Petrolagar Laboratories Ltd.)

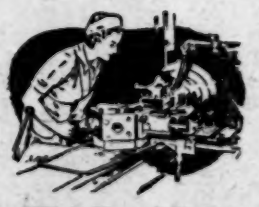
THE IDEAL LAXATIVE FOR PROLONGED USE

Certain characteristics have won for ENO'S "FRUIT SALT" a very high place in professional regard. Few simple medicines are presented in so attractive a form, and for patients obliged to maintain prolonged use of a laxative ENO'S "FRUIT SALT" provides a highly satisfactory answer.

By the natural process of osmotic diffusion ENO'S "FRUIT SALT" creates healthy intestinal conditions, from which follow gentle regular and complete bowel evacuations.

The morning dose of ENO'S "FRUIT SALT" is universally regarded in a singularly favourable light. It is refreshing, exceedingly pleasant to drink. It is non-irritating, non-toxic, non-habit forming, and free from sweetening agent. Diabetic patients may take it in perfect safety, and, owing to the absence of sulphates, ENO'S "FRUIT SALT" may be confidently prescribed for patients receiving sulphonamide treatment.

J. C. ENO, LTD.
(MEDICAL DEPT.),
GT. WEST RD., BRENTFORD, MIDDX.



THE WAR-WORKER

Environmental and occupational changes, in many cases, result in menstrual difficulty. The milder forms of primary dysmenorrhœa respond well to treatment with sedatives and analgesics of a salicylate nature.

Of these, 'Anadin,' a finely-balanced compound of aspirin, phenacetin and caffeine, is especially well suited to the alleviation of both uterine pain and cephalalgia.

The knowledge that this product is not habit-forming ensures absolute confidence during prolonged administration, should this be necessary.

ANADIN *Tablets*

ANADIN LIMITED, 12, CHENIES STREET, LONDON, W.C.1

1943

BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 25 1943

METHODS OF ARTIFICIAL RESPIRATION

BY

D. G. CORDIER, M.D.

Professeur Agrégé de Physiologie et de Thérapeutique Générale (Alfort, Paris)

PART I

CRITERIA OF EFFICIENCY OF DIFFERENT METHODS

Recent articles in the *British Medical Journal* (Gibbens, 1942) and the *Lancet* (1943) raise the much-discussed problem of the efficiency of different methods of artificial respiration. After an examination of Table I in the article by Gibbens it seems necessary to restate the present knowledge of this subject; otherwise it is hardly possible to explain the great variations in his figures. In any case it seems better to try to give a physiological explanation than to admit that "the almost ideological frenzy in the attacks of the opposing advocates leaves the impression that it is the nationality of the promoter which determines the choice of method" (Gibbens).

General Principles

All methods must, theoretically, obey the following requirements: (1) give sufficient pulmonary ventilation—i.e., as nearly as possible the ventilation of a normal subject at rest; (2) stimulate the heart and circulation to help respiratory exchanges and transport of oxygen to tissues; (3) be harmless in themselves, easy of execution, and rapid in attaining results.

To judge the physiological efficiency of the methods various tests have been used, the most important of which are: (1) determination of pulmonary ventilation and respiratory exchange; (2) radioscopic and radiographic control; (3) manometric values of cardiac pressures during inspiration and expiration; (4) control of blood movement in the circulatory system. In this paper I deal only with the test of ventilation, the theme of recent discussions.

Nearly all investigators have held the determination of pulmonary ventilation to be a test of the utmost importance. In the table given by Gibbens the results have been obtained by quite different experimental techniques—some on subjects who had voluntarily suspended their breathing, others on subjects in apnoea, first produced by voluntarily forced breathing, and others, again, on subjects who had just died and in whom rigidity had not yet taken place.

Determinations in Voluntary Suspension of Breathing

The first part of Table I shows the widely varying results obtained by various experimenters on subjects who have voluntarily suspended their breathing while artificial respiration is applied. It was the British "Suspended Animation" Committee which, in 1903, decided that Silvester's method would produce a larger ventilation than Schäfer's. Schäfer did not believe that the techniques made it possible to judge the efficiency of the different methods. He considered it evident "that it is possible by nearly all the methods investigated to obtain an exchange of air per respiration as great as that of the tidal air." Schäfer's conclusions retain their value. Physiologists who have carefully studied respiration know that normal subjects, even when accustomed to respiratory tests, are completely incapable of neutralizing their breathing during the experiment and cannot be entirely passive all the time. This is the fundamental reason which explains the great difference in the results obtained as shown in part 1 of the table.

Determinations on Subjects in Apnoea

In order to obtain more passivity in the subjects certain experimenters applied artificial respiration during the short period of apnoea which follows a carefully studied period of voluntary forced breathing. In these conditions the quantity of air which enters the chest at each artificial respiration is shown to be much less than during artificial respiration when the subject has voluntarily suspended his breathing. Details concerning the Hering-Breuer reflex and "chemical" control of breathing can be found in the excellent work on *Respiration* by J. S. Haldane and J. B. Priestley (1935; Clarendon Press, Oxford).

TABLE I

Experimental Conditions	Author	Lung Ventilation in c.cm.	
		Schäfer's Method	Silvester's Method
1. Subjects having voluntarily suspended their breathing	"Suspended Animation" Committee (1903)	366	458
	Schäfer (1904)	520	178
	Burton-Opitz (1922)	504 (average)	—
	Ploman (1906)	500–600	1,200–2,000
	Hamburger (1909)	616	454
	Liljestrand *et al.* (1913)	500	540
	Eve (1932)	1,000	—
	Killick and Eve (1933)	350–550	200
2. Subjects in apnoea	Liljestrand *et al.* (1913)	170	190
	Héderer (1934)	100–150	250–280
3. Non-rigid cadaver	Héderer (1934)	40–50	200
	Bruns (1927)	20	200
	Bruns and Thiel (1930)	20	200
4. Apnoeic patients in moderately deep anaesthesia	Waters and Bennett (1936)	2 females, 180 (average) 2 males, 662 (average)	214 (average) 933 (average)

The important point is that after a carefully studied period of voluntary forced breathing the passivity of the subject is much greater than when the subject voluntarily suspends his breathing. This is shown by the fact that the volume of air entering the chest at each artificial respiration is independent of the frequency of the artificial breathing, while with voluntary suspension of natural breathing the entering volume of air varies inversely with the frequency. In these conditions the results shown in part 2 of the table indicate that Silvester's method ensures a greater ventilation than Schäfer's. The technique gives better and more constant results than that which utilizes the subject who voluntarily suspends his breathing. The "Suspended Animation" Committee forty years ago observed:

> "It occurred to the Committee that it might be feasible to carry out the inquiry upon the living subject, the conditions necessary being that the subject should remain completely passive for the short period of time during which the experiment might last, and that he should not, by involuntary closure of the glottis, prevent the free passage of air into or out of the lungs. The first of these conditions can be readily fulfilled if the subject immediately prior to the experiments makes several deep respirations and the *besoin de respirer* is absent. Under these circumstances it is by no means difficult to perform artificial respiration for a short time without any resistance on the part of the subject, and without his making any spontaneous movements of respiration."

Determinations on the Cadaver and in Anaesthesia

In 1908 Schäfer summed up the position with regard to artificial respiration on the cadaver by stating that the experiments were mostly futile by reason of post-mortem rigidity. Other causes besides rigidity may interfere with the results; these include pre-mortem circulatory stasis, pulmonary or non-pulmonary origin of death, abdominal meteorism, and age and corpulence of the subject. By operating on non-rigid cadavers after tracheal intubation, Bruns, Bruns and Thiel, and Héderer obtained greater ventilation with Silvester's method than with Schäfer's, as shown in part 3 of the table.

In 1936 Waters and Bennett made a comparative study of different methods of artificial respiration on males and females. They used patients brought into apnoea by exaggerated minute-volume respiratory exchange while in moderately deep anaesthesia. The low carbon dioxide content resulting from such a procedure sufficed to prevent voluntary respiratory movements while the skeletal muscles were completely relaxed. These workers obtained a greater ventilation with Silvester's technique than with Schäfer's (part 4 of table), and they believe their findings to be a definite contribution because "an apnoeic patient under deep anaesthesia . . . exactly simulates the candidate for resuscitation by artificial respiration."

Conclusions

Taking into account the different techniques which may be relied upon for the comparative study of manual methods of artificial respiration, it seems justifiable to say that all experimenters agree that Silvester's method introduces in the respiratory tract of the apparently dead subject the biggest volume of air. But it is necessary to emphasize again that the determination of ventilation is only one criterion in judging the efficiency of these methods. The choice of a method depends also on the causes of asphyxia. In previous papers I have insisted on the advantages and disadvantages of Silvester's and Schäfer's methods and their possible improvements.

PART II

TILTING STRETCHERS VERSUS MANUAL METHODS OF ARTIFICIAL RESPIRATION

In 1932 F. C. Eve published an article on a new method of artificial respiration in which the patient lay on a rocking stretcher and the weight of the abdominal contents pushed the diaphragm alternately up and down. He believed that this movement of the diaphragm was sufficient to ensure lung ventilation of normal value. More recently articles have appeared suggesting the great superiority of Eve's method over other methods of artificial respiration. Gibbens (1942) writes:

> "Many otherwise uninjured men are rescued after only a short immersion and yet do not survive. This is undoubtedly because the normal methods of artificial respiration are not very efficient, need many skilled men, and are so tiring that they are not carried out thoroughly or for long enough. It was a relief to read of Eve's rocking method, which can be practised by unskilled men, efficiently and with little fatigue . . . Killick and Eve have given detailed figures which show the rocking stretcher's superiority over other methods, and it is eminently practicable at sea."

It is true that there are certain practical advantages in Eve's method, but its physiological superiority remains to be proved. The experiments so far made to demonstrate its efficiency are very few, and in my opinion fall short of proof.

Experimental Results with Eve's Rocking Method

In his article in 1932 Eve studied experimentally the effect of his rocking method on the lung ventilation of a subject voluntarily suspending his breathing. He found that each see-saw movement of the stretcher produced a lung ventilation of 1,500 c.cm. Schäfer's method applied to the same subject produced a ventilation of 1,000 c.cm. per respiration. The radiographic control of the chest in the subject voluntarily suspending his breathing during rocking showed a diaphragmatic excursion of 5 cm., which, according to Eve, indicates roughly a movement of 1,800 c.cm. of air. In the following year Killick and Eve, again experimenting on subjects voluntarily suspending their breathing, found much smaller values of lung ventilation. Using the rocking method at rates approximating to the normal respiratory rate, the tidal air was 450 to 600 c.cm. They also found Schäfer's method less efficient than had been shown by Eve a year before, and wrote that it produced a tidal air varying in different subjects from 350 to 550 c.cm.

These very different results obtained by the author of the method are no more surprising than the similarly different results obtained by other experimenters who have studied the efficiency of the various manual methods of artificial respiration on subjects voluntarily suspending their breathing. This technique of investigation is inconclusive because normal subjects, even when accustomed to respiratory tests, are completely incapable of neutralizing their breathing during the experiments and cannot be passive all the time. The lack of passivity in the subjects experimented upon by Killick and Eve is shown by the fact that the volume of air entering the chest at each artificial respiration varies inversely to the frequency, as is brought out in Table II, drawn from the experimental results of these investigators.

TABLE II

Rate of Rocking (R) per min.	Volume of Ventilation per min. (litres)	Tidal Air in c.cm. per See-saw
Without (R)	5·2	
6–7 (Rs)	5·4	830
10 ,, ...	6·1	610
14–15 ,, ...	6·6	450
20–22 ,, ...	8·5	400

Table III shows that results comparable to those of Killick and Eve are obtained when the rhythm of the respiratory movements is varied during artificial respiration produced by manual methods in a subject voluntarily suspending his breathing. Moreover, the volume of tidal air is practically the same as that observed in normal breathing.

TABLE III

Respiratory Rate per min.	Schäfer's Method		Tidal Air (c.cm.) Normal Breathing (Ventral) Position)	Silvester's Method		Tidal Air (c.cm.) Normal Breathing (Dorsal Position)
	Vol. of Vent. per min. (litres)	Tidal Air per Movement (c.cm.)		Vol. of Vent. per min. (litres)	Tidal Air per Movement (c.cm.)	
6	—	—	—	4·9	810	830
10	6·25	630	660	6·15	610	590
15	7·50	500	510	8·15	540	450
20	8·60	430	430	10·25	340	390

A glance at these tables shows that the experimental basis on which Gibbens relies as proof that the rocking method is superior to the other methods of artificial respiration is insufficient.

In 1936 Waters and Bennett studied comparatively the efficiency of the methods promoted by Eve, Schäfer, and Silvester on patients brought into apnoea by exaggerated respiratory exchange while in moderately deep anaesthesia. They stated: "An apnoeic patient under deep anaesthesia, we believe, exactly simulates the candidate for resuscitation by artificial respiration." Unfortunately, their experiments were carried out only on four subjects, and one single experiment was made to compare Eve's method with those of Schäfer and Silvester. This experiment was made on a woman, 47 years of age, whose vital capacity was 2,200 c.cm., and in this subject rocking through an angle of 60 degrees (the angle of tilt in the work of Killick and Eve was 50 degrees) produced a lung ventilation of 100 c.cm. In the same subject Schäfer's and Silvester's methods produced respectively a lung ventilation of 160 and 140 c.cm. That single experiment during which small ventilations were obtained does not suggest the superiority of Eve's method, and should be repeated on various subjects. Nor do the results obtained by Eve and Killick on subjects voluntarily suspending their breathing permit us to state definitely that the rocking method is the best. Eve's method may be physiologically excellent, and certainly it deserves thorough study. What are the experimental criteria which enable us to judge its comparative efficiency?

Criteria of Efficiency of the Rocking Method

In judging the efficiency of Eve's method very important information can be obtained by studying lung ventilation on subjects in apnoea, on apnoeic patients in moderately deep anaesthesia, and on the non-rigid cadaver. A comparative study is necessary on each subject, using in turn the methods of Eve,

Schäfer, and Silvester; and these studies, made on man, ought to be completed by experiments made on large monkeys after curarization. The comparative study of the various methods could be made (1) when the animal's breathing is stopped but cardiac activity remains, and (2) when breathing and heart-beats have stopped. The study of lung ventilation, chemical composition of expired air, gaseous exchanges, and percentage saturation of haemoglobin with oxygen in arterial and mixed venous blood would give very important indications of the efficiency of alveolar ventilation. It seems also absolutely necessary to study the influence of the angle of tilt on lung ventilation. If the weight of the abdominal contents actuates the diaphragm we may deduce that the volume of lung ventilation must be in relation with the angle of tilt.

A second criterion derives from radioscopic and radiographic study of the chest. This study must be made in the same experimental conditions as those used for the measurement of lung ventilation (subjects in apnoea, apnoeic patients in moderately deep anaesthesia, non-rigid cadaver).

One of the aims of artificial respiration is to stimulate the heart and circulation in order to produce oxygenation of the blood and to supply oxygen to the tissues. Artificial respiration creates an indirect massage of the heart, the intensity of which is shown by differences of pressure in the cardiac cavities during inspiratory and expiratory movements. The measurement of intracardiac pressure made on the non-rigid cadaver indicates that a quick see-saw flow of the blood takes place in the heart cavities, producing a true endocardiac massage. This mechanical stimulation certainly plays an important part in the restarting of the heart's activity. The various manual methods of artificial respiration are far from having the same efficiency on the cardio-vascular system. Table IV shows the differences of pressure produced in the left ventricle of the non-rigid cadaver by various methods during inspiration and expiration.

TABLE IV

Method	Lung Ventilation in c.cm. (Non-rigid Cadaver)	Pressure in Left Ventricle (cm. Water)		Difference (cm. Water)
		Inspiration	Expiration	
Silvester (without expiratory compression) ..	200	−8	+1	9
Silvester (with expiratory compression)	280	−8	+18	26
Schäfer	20	+9	+13	4
Combined method: Schäfer's method with raising of elbows	210	−7	+15	22

A study of Table IV shows that the manœuvres of artificial respiration which mobilize the thoracic framework above and below its position of equilibrium—i.e., which provoke an active inspiratory enlargement of the chest and then an expiratory compression—are the most efficient, both on the cardiovascular and on the respiratory system. Silvester's method with expiratory compression and Schäfer's method improved by the addition of an active inspiratory movement (raising the elbows) fulfil these conditions.

The feeble action of Schäfer's method on respiration and circulation can be explained by the conditions of the respiratory system. In the cadaver (and in the apparently dead body) all the reflexes have disappeared, the muscles are slack, and the loss of tonus in the respiratory muscles brings the chest into the complete expiratory position; the diaphragm is relaxed and arches into the thorax.

As a result of these changes the lungs are almost entirely emptied of air and the capacity of the thoracic cavity is much diminished. Therefore the conditions of the respiratory system in the apparently dead body do not lend themselves to methods of artificial respiration which use only expiratory pressure on the thorax and abdomen, since the respiratory system is already in the greatest possible state of expiration. The ventral position in Schäfer's method further exaggerates the diminution of the capacity of the thoracic cavity, because the weight of the spine, shoulder, and back muscles contributes also to the collapse of the thorax. The strong pressure (+9 cm. water) registered in the left ventricle of the non-rigid cadaver lying on the abdomen and the slight manometric oscillations resulting from the manœuvres of Schäfer's method show the complete collapse of the chest and the resulting compression of the heart. The state of collapse of the respiratory system of the apparently dead body explains completely why Schäfer's method, which compresses the abdominal viscera in the chest, utilizing the piston-like action of the diaphragm to expel the lung contents, has such a slight result on ventilation and circulation. As the rocking method is based on the same principle of stimulation of the inert diaphragm (by the weight of abdominal contents instead of abdominal compression as used in Schäfer's method), and the subject lies on the stretcher in the ventral position, it seems to me necessary to study the efficiency of Eve's method on the cardiovascular system of the apparently dead body.

The measurement of intracardiac pressure on the non-rigid cadaver during rocking and a complete study of the physiology of the circulatory system in large monkeys after curarization (measurement of arterial and venous blood pressure, circulation time, output of heart) under the same conditions as to rocking should yield information of great practical value.

Conclusions

Eve's rocking method certainly has great practical advantages, but the experimental criteria so far employed to study its physiological efficiency seem to me insufficient to prove its superiority to other methods of artificial respiration. A more complete experimental study is necessary before its efficiency can be determined.

BIBLIOGRAPHY

Bruns, O. (1927). *Klin. Wschr.*, **6**, 1548.
—— and Thiel, K. (1930). *Die Wiederbelebung*, Berlin.
Burton-Opitz, R. (1922). *Amer. J. Physiol.*, **61**, 562.
Cordier, D. (1936a). *Les Méthodes Manuelles de Respiration Artificielle*, Edit. Masson, Paris.
—— (1936b). *Les Méthodes Manuelles de Respiration Artificielle*, Rapport à l'Académie de Médecine de Paris, **116**, 193.
—— (1936c). *Bull. Soc. Thérap.*, 307.
—— (1937). *Anesthésie et Analgésie*, **3**, 30.
—— (1942). *Les Méthodes de Ranimation*, Editions de la France Combattante, Ltd., 4, Carlton Gardens, S.W.1.
Eve, F. C. (1932). *Lancet*, **2**, 995.
Gibbens, G. H. (1942). *British Medical Journal*, **2**, 751.
Hamburger, H. J. (1909). *Nederl. Tijdschr. Geneesk.*, **2**, 45, 1059.
Héderer, C. (1934). *Bull. Acad. Méd.*, **111**, 849.
—— (1935). Ibid., **114**, 178.
Killick, E. M., and Eve, F. C. (1933). *Lancet*, **2**, 740.
Lancet (1943). **1**, 178.
Liljestrand, G., Wollin, G., and Nilsson, S. (1913). *Skand. Arch. Physiol.*, **29**, 149.
Ploman, K. G. (1906). Ibid., **18**, 57.
Schäfer, E. A. (1904). *Proc. roy. Soc. Edin.*, **25**, 39.
—— (1908). *J. Amer. med. Ass.*, **51**, 801.
"Suspended Animation" Committee Report (1903). *Med.-Chir. Trans.*, **86**, Supp. 86.
Waters, R. M., and Bennett, J. H. (1936). *Anesth. & Analges.*, **15**, 151.

MANAGEMENT OF ACUTE PLEURAL EMPYEMA

BY

P. R. ALLISON, Ch.M., F.R.C.S.

Honorary Thoracic Surgeon, General Infirmary at Leeds

The treatment of pleural empyema, whether it be acute or chronic, is simple drainage, and the drainage must remain adequate for as long as there is an abscess cavity. This is a surgical principle which applies to collections of pus anywhere in the body, but it is a principle which, in the case of intrathoracic pus, is in danger of being submerged by a constant flood of new-fangled drainage tubes, new irrigation apparatus, water pumps, and electric suctions. The time at which an empyema should be drained is a matter for clinical judgment. The wise surgeon does not incise an infected area until the inflammation is well localized, and this too is applicable to pleural infections. Considerations of cardio-respiratory physiology may call for relief of pressure within the chest before drainage is advisable, and in such circumstances repeated aspiration of an infected pleural effusion may be necessary. Aspiration should be performed frequently, slowly, and without air replacement. In certain cases the same conditions may call for a water-sealed intercostal drain. When an empyema is ready for draining a liberal incision should be made, at least 2 in. of rib removed subperiosteally, and a tube inserted. Only the skin should be sutured. At operation

the pus should be evacuated and any fibrinous masses removed, so that they do not block up the tube. In such cases nothing more than an "open drain" is needed. Any system of closed drainage tends to focus attention on the apparatus rather than the empyema cavity. When drainage has been started—and that word is used advisedly—all that is required to maintain it is a piece of rubber tubing, a safety-pin, common sense, and what the gardeners call green fingers. There are many other useful devices for post-operative treatment, and the thoracic surgeon should have them all if he is to play his appointed part; but these things are no more than useful labour-saving accessories.

Why has empyema acquired such a bad reputation for false healing? Subphrenic, perirectal, and bone abscesses have a similar reputation. In all these the walls of the cavity are not equally elastic, and in three of them they are constantly being varied by the movements of the intercostal muscles, the diaphragm, or the pelvic diaphragm. In the pleural abscess there may be still further inequalities due to scarring in the underlying lung or thickening of the interlobar septum. These factors make for irregular healing and the creation of dead space, so that drainage which is adequate one week may be inadequate the next. The daily dressing of such cases is therefore a matter for a skilled and interested doctor rather than a nurse. Ideally the initial drainage operation should be done by the doctor who is prepared to do the daily dressings.

Causes of Inadequate Drainage

At any time during the post-operative period drainage may become inadequate, and an investigation into the cause of this will probably reveal one of the following:

1. Obstruction by Fibrinous Masses within the Drainage Tube

Where an intercostal drain or a minimal rib resection has been performed masses of fibrin may be left either loose or hanging to the walls of the cavity. Pieces of this may enter the lumen of the tube and block it up partially or completely. The amount of this material varies, but it is found particularly in the pneumococcal empyemas of children and those in which operation is long delayed. Sometimes the cavity is occupied by a mould of fibrin in which are lacunae filled with pus. A high solid content is also found in the empyema which results from an infected haemothorax and in the pleura after pneumonectomy that becomes infected through a bronchial fistula. Sometimes fibrinous masses form during drainage, and this is seen particularly in empyema complicating bronchiectasis. There should be no interference with drainage if the cavity is well cleared out at operation and if the tube is removed each day, sterilized, and put back. Gentle irrigation of the cavity with Dakin's solution may help, but the operator should be certain that bronchial fistula is not present. It should be done through a soft rubber catheter of such dimensions that there is ample room for the return of the displaced air between it and the sinus wall. If fluid is forced into an empyema without adequate provision for escape there is a danger of air embolism.

2. Obstruction by Granulation Tissue

One advantage of a simple open drain is that the tube may be removed, cleaned, sterilized, and replaced each day. If such a tube is left in too long healing may take place over the end and a plug of granulation tissue completely obstruct the lumen. If there are lateral holes in the tube, granulation tissue may grow into these and have a similar effect. In the same way the end of a self-retaining tube is even more likely to become obstructed, as there is a natural tendency to leave these in place much longer on account of the unpleasantness associated with repeated removal. It is not always possible to avoid such obstruction by daily irrigation, as the granulations are often in the form of a polyp, which may be temporarily displaced by irrigation only to fall back into the opening afterwards. Whatever sort of tube is used the danger of this type of obstruction is much increased by any form of suction.

3. Obstruction by Kinking of Tube

Kinking of the tube may occur where a drainage sinus is tortuous, or it may happen in the tissues of the chest wall or, where closed drainage is used, between the chest wall and the bottle. Such an accident is particularly liable to happen at the point at which a lateral hole is cut in a tube, and is a much more frequent occurrence with the present poor-quality rubber.

4. Tube too Short to Reach the Pleura

It is not an uncommon thing for an uninstructed nurse or house-surgeon to undertake the daily duty of cutting half an inch off the drainage tube, so that in a very short time the tube no longer reaches the cavity it is meant to drain, but lies uselessly in the chest wall. At other times a tube may come out accidentally and be left out for a few hours. In this very short time the chest sinus becomes narrowed, especially in the plane of the periosteum and intercostals. The tube is then often put back as far as it will go easily and the rest cut off. Where closed drainage has been used the tubing connecting the patient to the underwater drain is often anchored to the bed in some way, and it may then happen that a sudden movement by the patient may pull the self-retaining head of the tube out of the empyema cavity into the soft tissue of the chest wall.

5. Tube through the Chest Wall but not reaching the Cavity

This happens only as a result of healing of the empyema. At first the tube may be perfectly placed, but, as a result of elevation of the diaphragm, expansion of the lung, or both, the base of the empyema may heal more rapidly than the upper part, until a cavity is left above communicating with the tube by a long narrow track which is quite inadequate for drainage. This condition is seen particularly in those large empyemas involving the apex of the pleura. In these the expansion of the lung often seems most rapid in the subapical region, so that a residual apical cavity may come to communicate with a basal drainage opening through a narrow sinus 6 or 7 in. long. In these cases the tube must be lengthened in order to pass beyond the constricting area into the cavity. The part below this may then drain through lateral holes in the tube.

6. Tube too Far into Cavity

With both a simple tube and a self-retaining tube the inner end may be so far into the cavity that pus collects below it and only drains as an overflow. In the case of the open drain it is not satisfactory to have a tube which just reaches the pleura, because of the danger of its slipping out. The safest thing is to have the tube projecting a short way into the cavity and to cut a lateral hole in it at the point at which it enters the pleura. As will be mentioned again, it is important that the length of the tube and the position of the lateral hole should be constantly reviewed in the light of changes which the draining sinus undergoes during healing. As the floor of the cavity rises the sinus becomes longer and the lateral hole becomes ineffective. The inner end of the tube may then be above a fluid collection once more. Where a self-retaining tube is used in conjunction with a water-sealed drainage system a similar state of affairs may be produced in a different way. When the tube is first inserted a safety-pin should be passed through it at the skin level or at least in such a way as to allow a small thickness of gauze between the pin and the skin. If this is not done the tube easily works upwards with the movements of the patient and pus collects in the bottom of the cavity. Even when a pin is inserted it needs frequent changing in order that the skin round the wound may be properly cleaned, and it sometimes happens that a patient may lean on the tube while the pin is out, and so push it further into the cavity. Unless it is pulled down before the pin is inserted pus will collect around the stem of the tube.

7. Part of the Cavity Below the Drainage Opening

Where an empyema cavity has a broad base it is often difficult to decide on the best position for the tube. Sometimes the floor of the cavity is curved so that the anterior and posterior ends are both on a lower level than the middle. In such a case it may be wise to insert two tubes—one in front and one behind. Where only one is used either the anterior or the posterior end may remain dependent and be occupied by a puddle of pus which never drains away completely. Similar conditions sometimes occur because the drainage tube is not inserted with a view to the ultimate position of the

patient sitting up in bed or walking about the ward. The finding of a dependent part of the cavity is not, however, always a reflection on the placing of the tube, for it may result from the way in which the empyema heals. One example of this may be described. An empyema cavity heals from the edge centripetally. All along the line of junction of visceral and parietal pleura adhesion takes place, gradually pulling out the lung to the chest wall. If the empyema involves the diaphragmatic surface, and if it does so more in front than behind, then the line of junction will reach the chest wall behind first and continue to climb up the chest here while in front it reaches the chest wall later and so lags behind, the front part then becomes dependent from the drainage sinus. The condition can easily be diagnosed by tilting the patient into various positions and finding at what angle the pus starts to drain, or, more graphically, by injecting an opaque oil into the cavity and taking radiographs in the upright position. When the exact position of the dependent part has been located a second tube should be inserted here. It is usually wise in such a case to retain the original drain as well.

The sound is passed into the cavity straight. The end is then bent as in the dotted line and the sound gently withdrawn to the rim of the cavity. The length of the sinus is then measured on the staff of the instrument. The length of tube required to drain the cavity is estimated from this.

It must be remembered that from the point of view of an empyema the diaphragm forms part of the chest wall. Where the diaphragm is involved in an empyema the drainage opening must be placed lower than usual, and in fact the tube may often have to be placed in the usually forbidden zone of the costo-phrenic sinus. In such cases especial care must be taken to see that the tube is lengthened during healing, to prevent the diaphragm from becoming adherent to the chest wall over the end of the tube and leaving a cavity above. Such truly basal empyemas are sometimes, but not always, secondary to a peritoneal infection.

8. Loculation

When an empyema forms in a pleural cavity intersected by adhesions multilocular cavities may occur. This condition is not met with as often as might be expected. The loculi may be entirely separate, be joined through a very narrow channel, or have a fairly wide communication. In the first and second events drainage may be unsatisfactory from the first, but in the third it may become so by expansion of the lung at the waist of the hour-glass. This is a further reason for wide initial opening of an empyema, with careful note of its shape and size and the presence of any narrow channels, rather than the rib resection which is considered sufficient so long as pus is found and a tube inserted.

Tests for Cause of Unsatisfactory Progress

When an empyema is not progressing satisfactorily, therefore, what simple clinical tests can be made to find the cause? This is a problem which frequently faces the thoracic surgeon, often in conditions in which radiographic facilities are poor or absent. First, the patient should be sat upright in bed and the wound inspected. The presence of a sore skin, a rusty safety-pin, and large oedematous polyps of granulation tissue round the tube indicates neglect, and it can be assumed that the inside of the chest is equally unsatisfactory. The tube should be removed. If it is 1½ in. long and falls out easily it is certainly not in the cavity except in the case of small infants. In these circumstances a firm well-greased rubber catheter about size 10 should be passed into the sinus. This may find its way into a cavity without damage to tissues and with relief of pus. A series of catheters can then be passed gently until the sinus is wide enough to take a small rubber drainage tube. The length of catheter in the chest when pus flows is an indication of the length of the tube needed, but it is often safer to make the tube a little longer and cut a lateral hole at the measured length. It is unwise to probe such a sinus with metal or rigid gum-elastic probes except with the greatest gentleness and caution. It is better to subject the patient to a fresh rib-resection operation than to use any force in the dilatation of such a sinus. Where force is used there is danger of air embolus, temporary paralysis, or cerebral abscess. When the drainage tube is removed there may be an immediate flow of pus, and this indicates that the tube is too long. It is better in such circumstances to cut a series of lateral holes in the tube rather than to shorten it until a radiograph is available. It is sometimes possible to measure the length of the sinus by passing in a coudé gum-elastic catheter and gently withdrawing it until the bent end catches on the rim of the sinus opening into the cavity, but it is simpler still to explore with an instrument that I have had made by the Genito-Urinary Mfg. Co., which can be passed through the sinus straight and be bent when in the cavity: this I call an "articulated empyema sound" (see Fig.).

If no pus drains away when the tube is removed the patient should be tilted into various positions to see if there are any dependent pockets. Another useful guide is to inject a known amount of saline into the cavity when the patient is lying on the good side, sit him upright, and measure the amount of fluid that drains away. There may be some resistance to the withdrawal of the drainage tube, and then it suddenly comes away. The lumen of the tube is found to be filled with wet granulations and the sinus bleeds from the tearing off of this unhealthy tissue. Pus may then drain freely, or it may be necessary to pass a catheter through terminal granulations to effect this.

Just as the experienced operator knows when a needle enters an empyema cavity even when the pus is too thick to be withdrawn, so the same fingers will learn much about a drained empyema by the simple passing of a soft rubber catheter. This is not something which can be passed on to house-surgeons, but something that they must learn for themselves. They should be encouraged to keep constant digital contact with their empyemas and only to use radiographs to verify their findings and to solve problems which exist after the simple clinical tests have been applied. Nothing that has been said must be taken to minimize the most valuable information that can be obtained by radiography. All thoracic surgeons are aware of the immense help obtained from radiographs in the treatment of empyema. In the first place straight radiographs in the upright position, both postero-anterior and lateral, are taken. These will show residual fluid levels, residual opacities, and their relation to the drainage tube. The next step is to fill the cavity with an opaque oil, close the drainage tube, and take further pictures. Finally the tube is allowed to drain in the upright position and further pictures are taken to see if drainage has been complete, or, if not, the position of dependent portions. The size, shape, and position of the cavity in relation to the drain are then known. The presence of bronchial fistulae, disease in the underlying lung, or undrained loculi can also be seen.

An uncomplicated acute empyema, kept properly drained and properly dressed, should pursue an uninterrupted course to recovery. With the help of the physiotherapeutist trained in thoracic work this should occur without skeletal deformity or impaired cardio-respiratory function. If such steady progress is interrupted by a febrile attack it would seem obvious that it is the responsibility of the surgeon to find the cause of the temperature. Too often, however, is the patient put on a course of sulphonamides, and many valuable weeks of convalescence are wasted and much unnecessary ill-health and discomfort caused. If a patient whose empyema has been drained becomes febrile the most likely explanation is that the drainage has become inadequate. There are other possible causes: cellulitis of the chest wall, which usually results from stitching up the muscles round the tube after rib resection; deep abscess of the chest wall following pre-operative aspiration; or a tube which is "ulcerating" into the lung itself. In

this last case it usually happens that the lung expands and impales itself on the end of the tube. The correct treatment may be either to remove the tube altogether or, if a cavity is still present, to put a longer one in past the site of ulceration. A lung will never ulcerate through contact with the smooth curved side of a tube, but only with the end of a simple tube or the relatively sharp projecting rim of a self-retaining tube. Other causes of temperature may be disease in the lungs or, very rarely, the development of another empyema, or some cause remote from the chest such as a sore throat. Fortunately rare complications are meningitis, encephalitis, and brain abscess, but these things should be kept in mind during the investigation of a case.

Physiotherapy

Next in importance to the maintenance of adequate drainage through the whole course of treatment is the prevention of chest and spinal deformities with their resulting bad posture and impaired respiratory function. The picture of a deformed and rigid chest, with shortness of breath on exertion, dizziness, lassitude, lack of appetite, and even clubbing of the fingers, may closely simulate a chronic empyema and yet the lung may be uniformly adherent to the chest wall. I have seen all these signs and symptoms, including the finger-clubbing, disappear after a month's spinal and breathing exercises. Physical training, starting in a small way, should begin the day after operation. Special exercises have now attained a high degree of perfection. Those who have no highly trained personnel available to carry out this work should remember that any exercise which works the skeleton on the affected side is good. The lung should be forgotten and attention focused on the pectorales major and minor, the latissimus dorsi, the serratus magnus, intercostal, diaphragm, and abdominal muscles. Voluntary deep breathing is only followed by apnoea, but the deep breathing of healthy exercise is good, and for this reason the open drain is better than the closed, for it allows of long walks and hard work.

Placing of the Drainage Tube

When an acute empyema is ready to be drained by open operation the limits of the cavity should be ascertained as accurately as possible by aspiration of pus and the introduction of a little air. In this way a fluid level is formed, and radiological examination will show the exact position of the cavity. The tube should be placed so that it is approximately half-way between the anterior and posterior margins of the cavity, and in the case of the more common basal empyema about level with the dome of the diaphragm. Though this position may be a little above the lowest point at which pus can be aspirated, it avoids placing a tube in the narrow costo-phrenic sinus, where it rapidly becomes occluded. The main exception to this rule is the one already mentioned in which the diaphragm is extensively involved in the empyema. Apical and axillary empyemas should be drained 1 in. above their lowest points. A chronic empyema should always be drained at its most dependent part.

Infected Haemothorax

A small infected haemothorax differs very little from the post-pneumonic empyema, but under war conditions it is not unusual to find the whole pleural cavity involved. The very large infected haemothorax is generally the result of improper treatment of the original condition. Blood and bloody fluid in the chest which result from trauma should be aspirated without air replacement. They should be aspirated repeatedly and frequently, so that if infection occurs it involves only a small area of pleura. The introduction of air serves no useful purpose and only increases the size of the pleural cavity which subsequently needs drainage. When a lung has collapsed beneath a large infected haemothorax it may take as long as two years to expand. It must be remembered that where clotting takes place in a haemothorax loculi of fluid may form, and some of these may be infected and some sterile, so that aspiration in numerous places may be necessary. When infection is once established the chest should be opened, all clot evacuated, and adequate drainage established. The subsequent management is the same as for a post-pneumonic empyema, but healing may be delayed by scarring of the underlying lung from trauma at the time of the injury.

EAR, NOSE, AND THROAT CASUALTIES IN A GENERAL HOSPITAL IN THE MIDDLE EAST

BY

E. G. COLLINS, F.R.C.S.Ed.
Major, R.A.M.C.

Every medical officer has two main duties. The first is to use every means in his power to practise prophylaxis; the second is to ensure that when disease does arise the maximum number of his patients return to a state of health which will fit them for all forms of active service in the shortest possible time. Such a policy applies equally to the specialist as to the unit medical officer, and it was felt that a detailed analysis of the casualties attending the ear, nose, and throat department of a general hospital in the Middle East might form the basis for some constructive suggestions as to how the incidence of the more prevalent conditions might be diminished, the period of admission to hospital decreased, and more adequate treatment in general instituted.

The period chosen was from Sept. 20, 1940, to Feb. 20, 1941 (approximately five months), and, though it is admitted that a longer period would have been preferable, further experience showed that, with the exception of war injuries, no appreciable variation occurred over two years. During the months under review war injuries affecting the ear, nose, or throat were few in number, and the type of disease encountered bore a close resemblance to that found in the ear, nose, and throat department of any hospital in the British Isles. There was, however, a definite alteration in incidence. Statistics make dry reading, and for the purpose of this article it is proposed to abstract the more prevalent diseases only from the detailed analysis that was made of all the cases.

Out-patients

The number of out-patients who attended for the first time was 517. As the numbers in the area were constantly changing no useful information is obtainable from a comparison of attendances in the different months. The more prevalent diseases were:

(a) Aural Diseases

Disease	% Aural Cases	% Total Out-patients
Otitis externa, acute	20·70 } 34·4	10·25 } 16·05
,, ,, chronic	11·72 }	5·80 }
,, media, acute	7·03 } 34·76	3·48 } 17·21
,, ,, chronic	27·73 }	13·73 }
(Ruptured tympanic membrane	2·73	1·55)

It will be noted that the gross percentages of otitis externa and otitis media are approximately equal.

(b) Nasal Diseases

Disease	% Nasal Cases	% Total Out-patients
Deflected septum	12·65	4·06
Sinus infection	66·87	20·31

Of the sinus cases 74% yielded to treatment by conservative measures, which included short-wave diathermy and repeated proof-puncture.

(c) Throat Diseases

Disease	% Throat Cases	% Total Out-patients
Tonsillitis, acute and subacute	54·65 } 91·56	10·25
,, chronic	36·91 }	6·91

A large number of the subacute cases were patients sent down from the medical wards for an opinion on the advisability of operation. In a further 18% of out-patients who came up for different complaints some degree of chronic tonsillitis was noted, but not sufficient to warrant operation.

In-patients

It was found that the total number of in-patients admitted for ear, nose, and throat diseases was 11.35% of the total admissions to the hospital, and comparison with figures obtained from a military

hospital in peacetime showed that there was no relative increase as might have been expected during a war. The only comment that might be made is that the cases admitted were more of an emergency character. The admissions were analysed as follows: Total number of in-patients with ear, nose, and throat diseases, 537; admitted to medical wards, 350 (65%). Practically all of these were cases of acute tonsillitis. Admitted to ear, nose, and throat ward, 187 (35%). The cases comprised: otitis externa (acute and chronic), 19%; otitis media (acute), 16%; otitis media (chronic), 24%; sinusitis (acute), 11%; sinusitis (chronic), 6%; miscellaneous, 24%. Only three cases of ruptured tympanic membranes were admitted to the ear, nose, and throat ward, but many others were seen in the general surgical wards. Of these there is unfortunately no record available.

Operations.—The total number of operations performed was 171. Of these, 77 were for dissection of tonsils, 7 for cortical mastoid, and 6 for a radical or modified radical mastoid (3 had a fistula of the external semicircular canal). In addition intranasal drainage of the sinuses was performed on 18 patients, and 1 patient had a radical antrum operation (Caldwell-Luc).

It is proposed to discuss these various conditions in greater detail. Some of the suggestions made are already in force in the Middle East; others are purely personal, and have resulted from discussion of the problems with other otologists. These might be modified with further experience and information, but for the sake of obtaining a complete picture all have been included.

Otitis Externa

There is no doubt that the frequency of this disease is increased by service in the Middle East. As has already been shown, the cases of otitis externa and of otitis media are approximately equal in number. It is in its acute form that the disease interferes with the efficiency of the soldier, but there is no sharp line of demarcation between the acute and the chronic phase. With the least provocation the latter is liable to flare up and become acute. Especially is this the case when an associated chronic suppurative otitis media is also present and when the soldier is posted for service in the Western Desert. The aetiology of the disease still remains obscure. Dust, heat with its concomitant sweating, bathing, and, in the Western Desert, lack of water for personal ablution have all been mentioned as factors in its causation. Other possible causes are the high salt concentration of the water and an allergic origin due to focal sepsis. These aspects have been well reviewed by Daggett in an excellent article on cases which occurred at Malta. It seems possible that not one factor alone, but several, may be responsible, and that anything which favours the growth of organisms and the maceration of the skin may play a part. In a series of aural swabs examined the organisms found were diphtheroids, *B. proteus*, and *B. pyocyaneus*. The last-named was very difficult to eradicate. *Staph. aureus* was present in a greater proportion than was noticed in the Malta series, and the streptococcus was infrequent.

In acute otitis externa the soldier experiences very severe pain in the ear, there is scanty aural discharge, and the meatus is greatly narrowed and often pin-hole. It was noticed that there is often a deficiency of true waxy secretion, and the return of normal soft wax was regarded as one of the signs of cure, but whether this is of any practical significance is undetermined. Frequently there is an associated adenitis with considerable constitutional disturbance. In its chronic stage the disease is very resistant to treatment and apt to recur.

Treatment.—Many acute cases could be prevented or aborted if the soldier reported to the medical officer at the first sign of any aural discharge. The following suggestions are offered as prophylactic measures with some reserve, owing to our present lack of knowledge. It did, however, appear that some protection was afforded by the use of vaselined cotton-wool plugs inserted in the ears while bathing. Another important point is that great care should be taken in drying out the ears with any rough towel after bathing, and, if possible, it is better to use a pencil of cotton-wool. Bathing in swimming-baths appeared to be more harmful than bathing in the sea. Where there is an associated seborrhoeic dermatitis of the scalp it must be treated, but this was infrequent in the patients seen. It is not the purpose of this article to discuss local treatment in detail, but thorough cleansing of the external auditory meatus, and especially the recess near the antero-inferior part of the tympanic membrane, is an essential for success. Two applications that proved of value in the acute form were 10% ichthyol in glycerin, and 8% solution of aluminium acetate (Burow's). The latter was, however, practically unobtainable, and good results were reported from the use of 5% lead acetate. Medication is applied by means of a gauze wick. In the more chronic form a hydrarg. oxi-flav. paste was used with benefit. Ointments are contraindicated in a hot climate. A 4% solution of sulphanilamide in sodium bicarbonate met with some success, though this would not be expected with the type of organism present. It is possible that when penicillin is available on a commercial scale we shall have a useful addition to our medication. When the disease frequently recurs or where there are gross hypertrophic changes in the meatus it is better for the otologist to board the patient for base or home service, as desert warfare is definitely contraindicated.

Otitis Media

Acute otitis media did not form a large proportion of the cases during the period under review, but there was a definite increase during the summer months—probably attributable to the greater use of the swimming-baths. The prophylactic measures include the avoidance of diving and of swimming under water when the soldier has a cold. The use of dirty handkerchiefs and incorrect blowing of the nose are other obvious causes; but perhaps the average "Tommy" is less liable to err than the officer, as he usually adopts the more physiological method of clearing his nose by sniffing rather than blowing. Treatment was greatly influenced by the oral administration of sulphonamides, and it was necessary to submit only 6 patients out of a total of 47 cases of acute otitis media to a cortical mastoid operation. This was undertaken more because of the continuation of the discharge than because of the acuteness of the symptoms. Chronic suppurative otitis media proved a more difficult problem. Whereas, in civil life, the soldier could carry out his work easily without paying much attention to aural discharge, on active service in the Middle East other factors proved important. His efficiency may be impaired by (*a*) deafness, which may be progressive in character, leading to the misinterpretation of orders; (*b*) the association of chronic suppurative otitis media with acute otitis externa; and (*c*) the occurrence of intracranial complications. Furthermore, a certain number of patients with chronic otitis media experience considerable pain or tinnitus on exposure to continuous rifle-fire, gun-fire, or explosions; but this is not a constant feature, and there appears to be an individual sensitivity. It would be more satisfactory if patients suffering from this disease were excluded from service in the Middle East, but as for various reasons this has proved impossible some scheme must be devised for their treatment. The following contains many suggestions that were already in force in the Middle East.

Scheme for the Treatment of Chronic Suppurative Otitis Media

1. *Role of the Otologist.*—(*a*) All patients with chronic suppurative otitis media should be seen at least once by an otologist, who would decide which patients needed recategorization, admission to hospital, "self-treatment" under the supervision of the unit medical officer, or treatment at an aural treatment centre.

(*b*) With regard to recategorization, considerable latitude was allowed the otologists in the Middle East, and it was possible to "board" a soldier for a period of three months for base duties only without resorting to a medical board. The actual fighting in the Western Desert was very mobile, and it must be recognized that in the middle of a battle the unit medical officer is not able to attend to the cleaning out of a patient's ears. Often his ambulance car or truck is never properly set up, and there is no established M.I. room. Consequently, more patients were graded for base duties than would have been the case in static warfare. This does not necessarily imply that every case of chronic suppurative otitis media should be graded for base service only, as the question of man-power must receive careful consideration. Some of the patients can clean out their ears quite well themselves *if they have had a proper training*. It is the duty of the otologist to decide which of these cases are suitable for this front-line method of "self-treatment."

2. *Role of the Unit Medical Officer.*—For some reason medical officers seem very much afraid of ear diseases, and it is a frequent occurrence for patients to be sent to the otologist without any attempt at a diagnosis. Perhaps this may in part be due to lack of equipment, but a certain amount is due to lack of knowledge and interest. Yet the ultimate responsibility for the condition of fitness of these patients rests with the medical officer. It is suggested:

(*a*) That a circular should be sent round to all unit medical officers containing an outline of the more common ear, nose, and throat diseases and established methods of treatment. This was done in the Middle East.

(*b*) That a short clinical course should be held at the ear, nose, and throat departments of the larger hospitals in the area. Not more than three officers should be attached to one hospital at a time, otherwise difficulty would be experienced in providing proper tuition.

(*c*) That it is the duty of the medical officer personally to instruct his patients in the proper method of "self-treatment." The procedure to be carried out would be included in the circular. In addition, it is suggested that the unit medical officer should be provided with "self-treatment" sets for distribution to his patients. These would contain 1/4 lb. cotton-wool (fine fibre), 2 dozen wood-wool applicators, and a 2-oz. bottle of boric acid in spirit drops with pipette, in a cardboard box. Instructions for use would be printed on the lids.

3. *Role of the Hospital.*—It is maintained that chronic suppurative otitis media is an "out-patient" disease and that any extensive "in-patient" treatment at hospital has a bad psychological effect, besides leading to a great wastage of valuable man-hours. Admittance to hospital should be reserved for those cases in which the otologist considers the aural condition endangers the patient's life; others with obvious nasopharyngeal sepsis, the removal of which will give a reasonable chance of a dry ear; and a much smaller group of patients which the otologist desires to keep under observation for the treatment of aural granulations or polyps.

4. *Role of the Aural Treatment Centre.*—It has been shown that in 40 to 50% of chronic suppurative otitis media the aural discharge will clear up if adequate conservative measures are taken. At a meeting of otologists in the Middle East it was suggested that aural treatment centres should be established at the larger base camps. The centres would be staffed by a medical orderly who had received six months' training by the otologist at the ear, nose, and throat department of a general hospital and who was capable of using a forehead mirror. This may appear to be a counsel of perfection, but personal experience has shown that, provided a keen and intelligent orderly is chosen at the start, complete reliance can be placed on him to carry out the treatment properly. His capabilities will depend on how much trouble the otologist takes to train him. The centres would be under the supervision of the Ear, Nose, and Throat Adviser to the area, who would visit them at stated intervals, and adequate equipment would be provided. So far as was possible, units would be treated by appointment. The establishment of these centres would have the advantage of avoiding waste of man-hours and would counteract the difficulties of supplying the necessary equipment to every unit medical officer. In addition treatment should be more thorough, as all too often treatment is delegated by the medical officer to an untrained orderly who has neither the knowledge nor the equipment to carry it out efficiently. Many patients who have attended such a centre should in time be fit to be graded A, and others be able to carry out "self-treatment" once the ear has reached a more healthy condition.

5. *Forward Otological Service.*—This was established in the Middle East, and that it was necessary is shown by the fact that over 200 cases of chronic suppurative otitis media were seen at Tobruk every quarter. Some of these patients had escaped the net at the base, while others had been sent up on draft from the infantry base depot although graded B. There is a considerable amount of ear, nose, and throat work to be done in a forward area, and if the otologist possesses some knowledge of general surgery he can make himself useful when the battle starts.

Treatment.—It is necessary to emphasize that prophylaxis consists in the proper and adequate treatment of every case of acute otitis media. In local treatment it matters little whether the "wet" or the "dry" method is used so long as the ear is cleaned out thoroughly before any drops are instilled. The otologist should bear in mind that radical mastoid cavities are slow to heal in the Middle East and are difficult to keep clean. The modified radical mastoid operation is, where possible, the method of choice, but in all treatment as conservative a policy as possible should be pursued.

Finally, it is emphasized that the success of any scheme will depend on the full co-operation of the units concerned.

Acute Tonsillitis

Prophylaxis consists essentially in isolation. It is suggested that, in spite of the difficulties, every effort should be made to carry this out near the front line, and that only cases of frequently recurrent attacks of tonsillitis should be sent back to base. At a base hospital a special ward should be available for cases of tonsillitis only, even at the cost of empty beds. This ward should be in the charge of a medical officer who is under the direct supervision of the ear, nose, and throat specialist—not, as at present, under the control of the medical side. Many patients are already referred to the specialist for the advisability of operation, and also, in a considerable number of cases, there is an associated "missed" sinusitis which leads to frequent recurrent attacks of tonsillitis, with readmission to hospital. It is suggested that there should be a small dark room attached to the tonsillitis ward with simple examination equipment available. It would be the duty of the ear, nose, and throat specialist to instruct the officer in charge of the ward in the methods of sinus investigation. Every case of acute tonsillitis should have the ears and sinuses thoroughly examined before discharge, and "missed" complications should not occur.

Treatment.—The infecting organism in the majority of cases in this area was *Str. viridans*; but in spite of this fact the administration of sulphanilamide definitely decreased the length of stay in hospital. Local treatment followed the usual lines. Operation by dissection of tonsils was undertaken in 17% of cases. Care was exercised in reaching a decision, and only those patients who had suffered from three or four severe attacks were regarded as suitable candidates. Because of the difficulty in regaining contact with a patient once he has been discharged, operation was undertaken early (i.e., a fortnight to three weeks after the start of the attack). Experience showed that, while the incidence of secondary or reactionary haemorrhage was slightly increased, this was never sufficient to endanger life, and in only one case during the five months was it necessary to give a second anaesthetic to control the haemorrhage. It is maintained that the benefit derived from this extra week in hospital more than compensated for the time lost through frequent recurrences, and, in addition, a long waiting list was abolished. There is no doubt of the benefit in health received by the soldier in the removal of a toxic focus.

Sinusitis

The figures for this disease strongly suggest that there is a high incidence of sinus infection in the Middle East. Part of this must be attributed to the infected dust-laden atmosphere, as there was a noticeable increase during a dust storm. Bathing in the swimming-baths appeared to have a deleterious effect, as even if the bacillary content was low the heavy chlorination practised had a harmful effect on ciliary activity in the nose. The prophylactic measures to be followed are outlined under the section on acute otitis media. Some doubt has been expressed as to whether Sluder's "vacuum" sinus headache is a real clinical entity. It can only be stated that this type of case was met with again and again in the Western Desert, where there were no clinical signs beyond a reddening of the mucosa of the middle turbinate and some tenderness on pressure over the sinus. The headache was definitely referable to one or other of the sinuses, and, even after exclusion of ocular, general, and psychological causes, a considerable number of patients remained. Clinically it did not resemble "vasomotor rhinitis," but an allergic factor may have been present.

Treatment.—A strong plea is put forward for conservative methods, such as inhalations with the use of ephedrine in saline sprays, headlight baths, short-wave diathermy, and repeated proof-puncture. It was found that 74% were cured by these means, and later experience in the desert confirmed the fact that operated cases did badly. It is probable that fewer cases still would have been submitted to operation had this experience been available at the start. Many in-patients with so-called "vacuum" sinus disease were improved by rest in bed and the ordinary conservative treatment of acute sinusitis, but the condition remained a definite problem.

Addenda

The following notes on some conditions are of interest:

1. *War Injuries.*—The number of war injuries seen during this period was small. It was noted, however, that there was a considerable proportion of war injuries to the ear among the general surgical cases, and an investigation was undertaken. The results, however, are not yet available.

2. *Deviated Septum.*—The opinion is held that during war the septum operation should be regarded as a "luxury"

measure except in the case of gross nasal obstruction or where it forms a contributory factor in the causation of catarrhal deafness or sinusitis.

3. *Diphtheria.*—This was treated at one central hospital where there were special nursing facilities. The cases seen here, though few in number, were of marked virulence, and although antidiphtheritic serum was given early in adequate doses it did not appear to have the usual effect. Peripheral neuritis seemed much more common and severe.

Summary

An analysis is made of ear, nose, and throat casualties occurring in a general hospital in the Middle East.

The commonest diseases were acute tonsillitis, otitis media, otitis externa, and sinusitis.

Suggestions are made by which (*a*) the incidence of these diseases may be lowered; (*b*) the period of admission to hospital decreased; (*c*) more adequate treatment in general instituted.

Miscellaneous notes connected with ear, nose, and throat work are included.

My thanks are due to Col. H. J. A. Longmore, A.M.S., for permission to make use of this clinical material.

REFERENCE

Daggett, W. I. (1942). *J. Laryngol. Otol.*, **57**, 427.

LOW SPINAL ANAESTHESIA DURING LABOUR IN CASES OF CARDIAC FAILURE

BY

HAROLD BURTON, B.M., B.Ch., D.R.C.O.G.

Resident Obstetrical Officer and Deputy Medical Superintendent, Stoke-on-Trent Hospital

Most authorities are now of the opinion that it is not justifiable to perform a Caesarean section on a cardiac case merely for the sake of sterilizing the patient at the same time. If, therefore, normal labour is to be allowed in these cases, it is the aim of this paper to show that by far the safest method for it to take place is under low spinal anaesthesia.

It is generally accepted that the dangerous stage of labour in a cardiac case is the second. During this stage, with its attendant bearing-down and straining on the part of the patient, the heart is put to its severest trial, as can readily be observed in the labour ward. The patient is seen to become cyanosed and her pulse to falter during these bearing-down efforts. The method of anaesthesia here described depends essentially upon cutting out these bearing-down efforts while otherwise allowing labour to proceed normally. The essential stimulus to bearing-down is the pressure of the presenting part on the pelvic floor and perineum. The low spinal method anaesthetizes just these parts, and these only, and thus breaks the bearing-down reflex on the afferent side of the reflex arc.

The usual objection to the use of spinal anaesthesia for cardiac and other patients is that it causes the blood pressure to fall. This is true of routine spinal anaesthesia, but not of low spinal anaesthesia. A glance at the anatomy and physiology of the sympathetic system will explain this. The sympathetic outflow from the cord, which is chiefly responsible for the tone of the smaller vessels and therefore the blood pressure, comes from all the thoracic and the upper two lumbar segments. Any spinal anaesthetic, therefore, which acts below the second lumbar segment has no effect on the blood pressure. This was confirmed in all cases by taking routine blood-pressure readings at half-hourly intervals before and after the spinal injection. The use and technique of low spinal anaesthesia depend upon this fact.

The Method

The technique is simple. Heavy percaine is used because it has been found that its effect is more lasting than that of other heavy spinal anaesthetics. The dose is 0.6 c.cm. The patient's back is prepared in the usual manner, and she is then sat up on the bed. The anaesthetic is given in the ordinary way between the third and fourth lumbar vertebrae, and the patient is kept sitting up for at least ten minutes to enable the anaesthetic to fix. The anaesthetic drops down to the bottom of the spinal theca. The sacral nerves only are anaesthetized, and a saddleback area of anaesthesia is produced over the perineum.

The anaesthetic is given just before full dilatation of the os, so that when the presenting part is pressing on the perineum bearing-down will be obviated. It is noteworthy that the ordinary labour pains in the abdomen and back can still be felt by the patient. These pains, however, do not cause her to strain: they merely cause discomfort. If the dosage has been correct neither the abdominal walls nor the thighs will be affected.

In order to develop the technique fully, about a hundred normal cases were delivered by means of low spinal anaesthesia. About half of them delivered themselves spontaneously and almost painlessly, and the rest were delivered by a low forceps extraction without further anaesthetic up to as long as six hours after the low spinal anaesthetic had been given.

Even for a normal patient and labour this method has advantages—i.e., by allowing normal labour to proceed without any feeling of perineal distension. Women thus anaesthetized, if told to do so, *can* bear down by reason of their abdominal musculature being left intact. If a perineal repair or a forceps delivery is subsequently necessary it can be performed without any further anaesthetic within six hours. My aim, however, is not to discuss this mode of anaesthesia with reference to normal labour, because here, although rendering the labour easy and painless, it is open to the objection that it is an undue interference in a normal case. But this objection does not apply to cardiac cases. These patients, instead of suffering the shock of an abdominal section under local anaesthesia, can have a normal labour without any extra strain upon their heart.

Any case of longitudinal lie can be treated by this method. Naturally the patient should have been at rest and her heart compensated so far as is possible, with or without digitalis, before labour. The discomfort of the first-stage pains should be reduced by the use of morphine-scopolamine analgesia.

Illustrative Cases

Case 1.—Mrs. M. is an example of a vertex presentation. She had had a premature labour two years previously and was extremely anxious to have a living child with this pregnancy. She attended the ante-natal clinic on Jan. 18, 1943, when she was 22 weeks pregnant. She was dyspnoeic even at rest. Her apex beat was very irregular, varying between 70 and 150 a minute. The pulse showed many dropped beats. An electrocardiogram on Jan. 26 showed a grossly irregular action due to a nodal rhythm. The patient was brought into hospital and digitalis therapy started, but by the second day her apex beat had dropped to 40 and the digitalis was discontinued. It was decided, after consultation with Dr. Boyd, the consultant physician, to keep the patient at complete rest until normal labour began. She started having pains on May 18. Morphine and scopolamine were given during the first stage. Her blood pressure was 110/80; the pulse rate varied between 70 and 140, and was irregular. At this stage, when the os was almost fully dilated, a low spinal anaesthetic was given. The blood pressure remained constant at 120/80. The patient was delivered one hour later by low forceps. At no time during the labour was she distressed beyond feeling the pains of uterine contractions. The puerperium was uneventful.

Case 2.—Mrs. H., a primigravida aged 22. Breech presentation due July 13, 1942; sent into hospital with cardiac decompensation on July 2. She was a case of classical mitral stenosis with presystolic murmur. There was dyspnoea at the slightest exertion. She had had a haemoptysis for a week before admission. Pulse rate, 120 at rest. Complete rest was ordered and digitalis therapy was started immediately. After a week she was fairly well compensated, with a pulse rate between 70 and 80. Pains started at 3 a.m. on July 21, and she was kept under morphine and scopolamine. The blood pressure at this stage was 125/80. The os was almost fully dilated at 6.45 a.m. Heavy percaine 0.6 c.cm. was given. The blood pressure remained constant. At 9.30 a.m. the breech was presenting. Episiotomy was performed and the child delivered normally. At no time was there the slightest distress.

Many other similar cases have been delivered by this method without any fatality. These patients are usually asked to attend a birth control clinic after discharge and to return later for

sterilization. This can then be performed when the heart has not the added burden of the placental circulation with which to cope.

One complication of the method must be mentioned. A spinal headache seems to occur much more frequently in pregnant than in non-pregnant patients. The headache often lasts for as long as a week. Several methods have been tried both to prevent and to relieve this spinal headache; but none of them is uniformly successful, and these methods are beyond the aims of this paper.

I wish to thank Mr. C. Gordon Lewis, F.R.C.S.Ed., medical superintendent, and Dr. J. Lindsay Boyd, consulting physician, of the Stoke-on-Trent Hospital, for their help and consideration.

EFFECT OF DIET ON THE CONCENTRATION OF CHOLESTEROL IN BLOOD AND BILE

BY

NANCY GOUGH, B.Sc.

(From the Clinical Laboratory, Royal Infirmary, Edinburgh)

It is widely believed that the level of cholesterol in the blood and bile is influenced by the intake of cholesterol in the food, and for this reason the diet of patients with disorders of the biliary system has commonly been restricted to food low in cholesterol. The following investigations suggest that this irksome restriction may be unnecessary, since the concentrations of cholesterol in the blood and in the bile do not appear to be significantly affected by the ingestion of comparatively large amounts of cholesterol.

Effect of High- and Low-cholesterol Diets on the Blood Cholesterol

Hospital patients whose metabolism was supposedly normal were fed on low-cholesterol diets containing about 300 mg. of cholesterol a day for a fortnight, and blood specimens were analysed for cholesterol at intervals of three days, all blood samples being taken at the same time of day. Then the cholesterol content of the diet was increased by the daily addition of 900 mg. of pure cholesterol, three eggs (approximately 1,100 mg. of pure cholesterol a day), or 50 g. of sheep's brain (approximately 2,170 mg. cholesterol a day), the cholesterol content of the blood again being determined at intervals of three days.

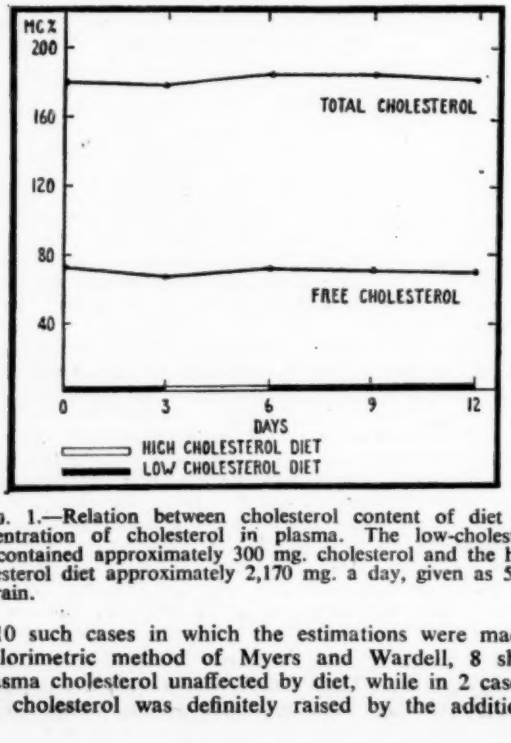


FIG. 1.—Relation between cholesterol content of diet and concentration of cholesterol in plasma. The low-cholesterol diet contained approximately 300 mg. cholesterol and the high-cholesterol diet approximately 2,170 mg. a day, given as 50 g. of brain.

Of 10 such cases in which the estimations were made by the colorimetric method of Myers and Wardell, 8 showed the plasma cholesterol unaffected by diet, while in 2 cases the plasma cholesterol was definitely raised by the addition of 900 mg. of cholesterol a day to the basic diet, and also by the daily addition of three eggs. Of another 10 cases, in which the estimations were made by the digitonin-precipitation method of Okey, in no instance did a high-cholesterol diet result in elevation of the plasma cholesterol. The accompanying graph shows a typical result in a normal person (Fig. 1).

Cholesterol Absorption

Experiments on the effect of a single dose of cholesterol on the blood cholesterol were carried out on four normal subjects, who had been fasting for twelve hours before each experiment. The estimations were made by Okey's digitonin-precipitation method. A cholesterol-free, fat-free meal supplemented by 5 g. of pure cholesterol was given, and a blood cholesterol curve constructed over a period of six hours. The blood cholesterol curves did not differ significantly from those obtained from the same subjects when given the same meal without the added cholesterol. As it was thought possible that the absorption of crystalline cholesterol is dependent on the presence of adequate fat in the intestine, this experiment was repeated, 50 g. of fat as margarine being added to the test meal. Again no significant difference was observed. Fig. 2 shows the results in the case of two of these subjects.

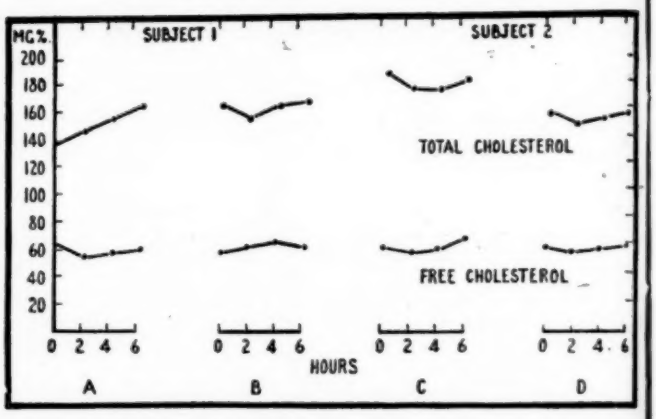


FIG. 2.—Plasma cholesterol curves over a period of six hours. A=Test-meal (cholesterol-free, fat-free). B=Test-meal + 5 g. cholesterol. C=Test-meal + 50 g. fat. D=Test-meal + 50 g. fat and 5 g. cholesterol.

The conclusion from these experiments appears to be that 5 g. of crystalline cholesterol by mouth has no effect in raising the free or esterified cholesterol in blood. Whether these findings can be explained by a failure in absorption of crystalline cholesterol, or by some mechanism whereby it is removed from the blood or altered into some compound not detected by the analytical method employed, is uncertain.

Effect of High- and Low-cholesterol Diets on the Cholesterol Content of the Bile

These experiments were carried out on 10 patients with biliary fistulae. The clinical condition of 4 of the patients did not permit the giving of experimental diets, and they were therefore kept on a light ward diet, which has a fairly constant low-cholesterol content of approximately 300 mg. a day. The remaining 6 patients were given a special low-cholesterol diet containing less than 300 mg. of cholesterol. After a period of two or three days they were given a diet with a high content of cholesterol, as the pure substance or as brain, for a further period of three days. Bile was collected from the fistula on alternate days. The cholesterol content of the bile was invariably very low immediately after the operation, but rose gradually, presumably as the liver damage lessened, although there was considerable day-to-day variation. This variation was most pronounced (10 mg. to 45 mg. per 100 c.cm.) in a case with severe hepatic damage (gross jaundice). There was also a great daily variation in the volume of bile which drained externally.

In human beings with a biliary fistula it is impossible to determine what proportion of the bile is draining externally and what is draining into the intestine via the common duct: hence no calculation can be made of the total secretion of bile

or cholesterol. But it is possible to compare the concentration of cholesterol in a given sample of bile with the cholesterol ingested in the diet.

Of 10 patients with biliary fistulae, 1 showed a distinct rise in the bile cholesterol concentration on a diet containing a high content of cholesterol (about 2,000 mg., given as 50 g. of sheep's brain a day); 1 a rise when the high-cholesterol diet was first given, with a subsequent return to the original level (the patient still on the high-cholesterol diet); and 2 a fall in the cholesterol concentration of the bile on a low-cholesterol diet. In 6 no significant or sustained changes in the bile cholesterol concentration coincided with changes in the cholesterol content of the diet. The results in one of these six cases are shown in Fig. 3. The duration of these experiments was limited by the short period of time during which the fistulae remained open.

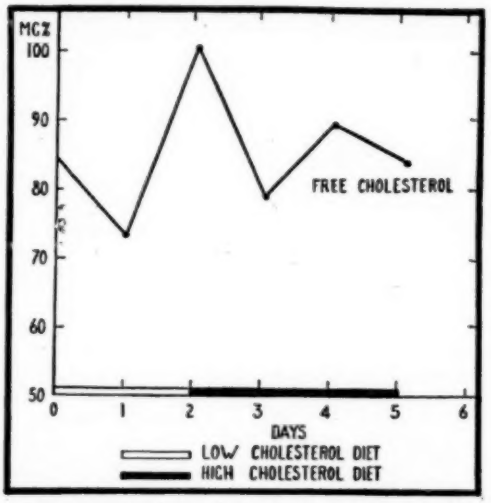


FIG. 3.—Concentration of cholesterol (free) in bile of a patient with biliary fistula. The low-cholesterol diet contained approximately 300 mg. a day, and the high-cholesterol diet 2 g. given as the pure substance.

To overcome the difficulty mentioned above with regard to determining the total output of cholesterol in the bile recourse must be had to operations on animals. Prof. Learmonth inserted a tube into the common duct of a dog so that all the bile drained externally. The animal remained in excellent condition for one month, the absence of bile in the intestine being compensated by giving 1 g. of sodium taurocholate by mouth every day. The total volume and the cholesterol concentration of the bile were measured daily; for the first three days insufficient bile was secreted for analysis, but thereafter it increased, although there was considerable fluctuation both in the volume and in the cholesterol content. After about ten days these became fairly constant (concentration of cholesterol in bile 13 to 14 mg. per 100 c.cm., and total bile cholesterol excreted about 20 mg. a day). Approximately 2 g. of cholesterol was then fed in the form of 50 g. of sheep's brain, and there was an immediate rise in the bile cholesterol (27 mg. per 100 c.cm. and total bile cholesterol 38 mg.), which was maintained for 48 hours; but subsequently both concentration and total output of cholesterol in the bile returned to the original level, although the high cholesterol content of the diet was maintained.

Conclusion

Further experimental work on animals is obviously required before any definite conclusion can be reached as to the effect of diet on the total output of bile and cholesterol, but the evidence of the foregoing experiments on human beings seems to indicate that there is no direct correlation between the intake of cholesterol and its level in the blood and bile. These observations give no support to the contention that foods rich in cholesterol should be prohibited in the diet of patients with cholecystitis and cholelithiasis. The exclusion of butter, fat, eggs, and liver from the diet of patients with diseases of the biliary tract is based essentially on the hypothesis that gall-stones are formed from cholesterol, and that a reduction in the intake of cholesterol accordingly reduces the liability to gall-stone formation. Such a low-fat, low-cholesterol diet is unphysiological because fat is the natural stimulant to biliary contraction and drainage, and has the further disadvantage of being unpalatable, monotonous, and low in fat-soluble vitamins.

My thanks are due to Prof. L. S. P. Davidson and Dr. C. P. Stewart, under whose direction this work was done, and to Prof. J. R. Learmonth, who carried out the necessary animal surgery. Part of the expenses were defrayed by a grant from the Medical Research Council to Prof. Davidson.

Medical Memoranda

Contramine for Herpes

Herpes is very prevalent in this locality and is often of great severity; in some cases the acute stage has lasted for months and the after-effects for years. Hence my satisfaction when I stumbled on a specific which provided a rapid cure of this painful malady. By means of this treatment, *if given early*, the acute pain is often relieved in a matter of hours, the vesicles disappear in a week or so without pitting, and there are no after-effects.

Some time ago, while attending an elderly lady for rheumatoid arthritis, I gave a course of injections of contramine. When visiting her to administer the second injection she complained of acute pain in the right supraorbital region. The next day I had an urgent summons, and found a very extensive herpes rash present. To my surprise this completely disappeared in five days. On the assumption that the contramine cured rather than caused the herpes, I have in the last twelve months treated 15 cases by this method.

The results may be summarized as follows: Average duration of pain before case diagnosable, 4 days; average time between irruption and injection, 16 hours; average duration of irruption, 7½ days. In a few cases among elderly patients of the residential class there was some neuritic pain for a further week after the skin was normal.

The efficacy of the treatment was most pronounced in those cases in which the injection was given within a few hours of the first appearance of the spots, especially in the pre-vesicular stage. The following cases may serve as examples, taken in more detail:

REPORTS OF CASES

Case 1.—On Sept. 5, 1942, a single lady aged 70 consulted me about an acute pain which she referred to the eye. On the following evening I received an urgent message to visit her, as she had fainted with the pain, which was of a spasmodic character. I then arranged with a consultant ophthalmic surgeon to see her the following afternoon. The next morning I witnessed an acute attack severe enough to make her pulseless. By this time I suspected an acute herpes, which was confirmed by the consultant in the afternoon. Contramine was then given, with the result that there was no further pain, nor did any rash develop, and apart from a few days' weakness the patient was well.

Case 2.—On Dec. 24, 1942, a man aged 76 complained of violent occipital neuritis, and two days after this a slight rash appeared from occiput to orbit. Contramine was given, and the vesicles never fully developed but formed dry scabs. This would undoubtedly have been a very severe case, but he was well in a fortnight.

Case 3.—A working man aged 52 complained of an increasingly severe pain in the chest and loss of sleep for two nights. His work was hard, and as it was essential he wished to carry on, but doubted whether he could. On examination an early shingles rash was found over the whole of the left chest. An injection was given, and two days later he reported that the pain had ceased entirely in four hours. All symptoms had gone in four days.

In five cases drawn from the working-class similar results were obtained—much better than in elderly, and wealthier, patients.

ITS USE IN CHICKEN-POX

I have reason to believe that the treatment is equally effective for chicken-pox. Of the three cases in which I have used it details of one may be of interest—the only early case.

A boy aged 16, living at a hostel for evacuees, most of whom had not had this complaint, had an attack with a severe onset, and was injected with contramine 12 hours after the appearance of the rash. On the third day, being quite well, he was allowed up, did gardening, and mixed with the other children. None of these were infected.

COMMENT

The injection intramuscularly of 1 c.cm. (0.125 g.) of contramine (B.D.H.) gives a dramatic result in early cases of herpes, and is of great value in chicken-pox. In no case was pitting or

scarring of the skin visible after recovery, nor was there a long-continued irritation. In a few cases a second injection was given, especially if the first was given late and the rash was well developed.

Its use in chicken-pox, especially in young children, has not yet been investigated fully.

I should be interested to receive reports from other medical men who might be disposed to try this treatment.

Budleigh Salterton. EWART S. HAWKES, M.B., Ch.B.

Vomiting Sickness in Jamaica

For some years now, beginning in the autumn and continuing through the winter, with the peak in January, a condition termed "vomiting sickness" for lack of a more appropriate name claims many lives of the people of Jamaica, especially the lower class. For some time the ackee, a local fruit, has been thought to be the source. Had it been so the population would have been greatly reduced, since it is a very cheap article of diet and eaten by all. Children eat even the uncooked fruit without any untoward results. The local authorities have done little, if anything, to probe the cause in spite of its yearly toll. Sometimes two, three, or even four children in the same household fall to this malady within a day or two. In many instances the attack is severe and causes fear and concern among the community. The recent outbreak was widespread and claimed many lives. The clinical features are dramatic and acute. The majority of fatal cases seldom last longer than a day, in some instances hours. The doctor is generally called when the condition is well on the way; in some cases the patient is dying. The history is usually "bad feeling" in the abdomen and epigastrium, anorexia, vomiting (sometimes bile-stained, sometimes glairy and ropy). Clinical signs are mainly restlessness without anxiety, dehydration, eyelids usually closed, contracted pupils which are finally dilated, rapid—sometimes full—pulse, slight increase of temperature. By this time the patient is often unconscious. Sometimes the vomiting follows a meal without any previous warning.

Varying clinical symptoms dominate the picture. These are exemplified in the following cases:

ILLUSTRATIVE CASES

Case 1.—A boy aged 12 "was well until the day before, when he did not have his dinner," and complained of pain (cutting and griping) in the abdomen (chiefly in the umbilical and epigastric regions). He soon became unconscious, with locked jaws; there were periodical states of irritability and restlessness, and stiffness of some extensor muscles. He was dehydrated. Response to symptomatic treatment was good.

Case 2.—Boy 7 years old—apparently well "this morning"—had a sudden "bad feeling" in the abdomen and epigastrium, followed by vomiting and fits. He soon became unconscious and comatose, with stiff extensor muscles, marked opisthotonos, locked jaws, severe dehydration, rapid full pulse, and slightly increased temperature. Death occurred a few hours later.

Many other cases were observed in which abdominal symptoms were more pronounced than the above. In my opinion there are many factors which undoubtedly contribute to this "vomiting sickness." It may have had its origin in the previous dry season. The children are usually anaemic, poorly clad, in unhygienic surroundings, generally malnourished, and in some instances worm-infested. The high temperature in the summer, fresh fruits, green vegetables, etc., seem to tide them over till winter, when all these are absent; then the effects show themselves in "vomiting," "abdominal pain," etc.

The condition usually appears with malaise and abdominal pain. The port of entry seems to be in the epithelial lining of the small intestine. Is it that the condition has brought about a greater permeability of the epithelial cells due to the lack of certain constituents of the blood causing substances or toxin in the gut to be absorbed in the circulation; or is there actual damage of the cells themselves?

In the case of worms the multiple sites of attachment may be important. Is the abdominal pain peristaltic in nature? The general symptoms would suggest circulatory invasion of some form of toxin. Clinically, sometimes there are evidences of meningeal irritation, stimulation of the centres in the medulla—respiratory, vasomotor, vomiting, etc. What, then, is the composition of the toxin, sapotoxin, split-proteins, or bacteria concerned? The laboratory must decide.

From the above one could say that the following conditions contribute much to the cause of "vomiting sickness": (1) a certain lack of nutritional and vitamin requirements; (2) exposure to (and ? shock from) sudden variations in temperature; (3) toxaemia from a possible intestinal origin. These three conditions usually are experienced by a certain class of the population with a very poor economic background.

Frankfield, Jamaica. A. A. WRIGHT, M.D., B.Sc.

Reviews

THE DYSENTERIES

The Dysenteric Disorders: The Diagnosis and Treatment of Dysentery, Sprue, Colitis and Other Diarrhoeas in General Practice. By Sir Philip Manson-Bahr, C.M.G., D.S.O., M.D., F.R.C.P. Second edition. (Pp. 629; illustrated. 30s.) London: Cassell and Co. 1943.

The first edition of this book, published four years ago, has been widely read. It has supplied medical men with invaluable information on the diagnosis and treatment of those most troublesome intestinal infections which may be grouped together as the dysenteries, including sprue, colitis, and diarrhoea. Since the outbreak of the present war certain advances have been made, the most remarkable of which is the application of the sulphonamides in the form of sulphaguanidine to the treatment of bacillary dysentery, which in the last war was responsible for so much sickness and death among the troops. In this war it is perhaps safe to say that so far bacillary dysentery has played but a minor part compared with its ravages in the last war. One would ask: Is this the result of a specific therapy or is it wholly or in part due to improvements in Army sanitation, or possibly to some change in the virulence of the causative organisms? Whatever may be the real explanation there is no doubt that bacillary dysentery still occurs, while acute cases of virulent Shiga infections are by no means uncommon. It is in the last that sulphaguanidine is of such value, for its immediate use in full dosage rapidly cuts short the disease in the majority of cases. The use of this drug is fully discussed by the author, this section being the most valuable addition to the second edition of his book.

The author's development of his views on the nature of sprue as a complex nutritional disorder has necessitated a new chapter on pellagra, which serves as an introduction to the section on the steatorrhoeas. Another specific remedy, already noted in the first edition, is atebrin as an almost certain cure for giardiasis, that rather mysterious infection of the upper intestinal tract. Further evidence of its activity has accumulated, and this has been duly recognized in the new edition.

In several other minor respects the book has been modified, but its general arrangement is the same and it still retains its high position as the standard work of reference on the disorders with which it deals.

DERMATOLOGY

Diseases of the Skin. By Oliver S. Ormsby, M.D., and Hamilton Montgomery, M.D. Sixth edition, thoroughly revised. (Pp. 1,360; illustrated. 70s.) London: Henry Kimpton.

This book maintains in its newest edition its p[illegible]e as one of the leading American treatises on dermatology. Only five years have elapsed since the fifth edition appeared, but in order to combine modernity of outlook with economy of print and paper the authors "have regrouped a large number of diseases, added two new classes, eliminated much material rendered obsolete through recent discoveries, added twenty-two diseases not previously included, and rewritten the accounts of many others." We quote from the preface. Certainly this is a remarkably complete handbook of dermatology, but while the rarities or museum pieces receive mention the commoner cutaneous afflictions with which the practising doctor is chiefly concerned are given space which is proportionate to their greater importance. For example, there is a very good chapter on cutaneous syphilis and its treatment, including a discussion of the comparatively new method known as the massive or five-day intravenous drip. The drug used for this purpose was at first neoarsphenamine (American for neosalvarsan), but this was found to be less satisfactory than mapharsen, which is now always substituted for the older preparation. In many circumstances the advantage of compressing the whole of the necessary and adequate treatment for syphilis into five days is obvious, though it is not every patient who would tolerate an intravenous drip into the vein for ten to twelve hours daily for five successive days. It is not entirely without risk, for in 1,600 cases studied by the U.S.A. Public Health Service there were five deaths—nearly 1 in 300.

There is a full discussion on eczema and the various forms of ringworm, an infection which has recently assumed so much importance among eruptions on the hands and feet. The authors are perhaps most deeply interested in neoplasms, and the chapter devoted to this important subject is very interesting and full. They employ a term which is new to us—"lymphoblastoma"—and they use it to include mycosis fungoides, various types of leukaemia cutis, Hodgkin's disease, and lymphosarcoma of the skin. All these conditions have been long thought to be pathogenetically related, even though their exact connexions may not yet have been worked out, and it is convenient to have a single term to comprehend them all.

In short it may be said that this is a very good textbook of dermatology well worthy of the medical school of Chicago and of the Mayo Foundation from which it has sprung. It is well illustrated with excellent photographs, and the only criticism of its format we make is that it would be easier to handle if it were divided into two volumes.

REVIEW OF PHYSIOLOGY

Annual Review of Physiology. Volume V. Editor, James Murray Luck; Associate Editor, Victor E. Hall. (Pp. 613. $5.00 or 31s. 6d.) California: American Physiological Society and Annual Reviews, Inc.; London: H. K. Lewis and Co. 1943.

Several of the reviews in this excellent publication, the standard of which is well sustained by the present edition, will be of use to clinical investigators as well as to physiologists. It need hardly be said that physiologists will find the volume as valuable as its predecessors have been.

Reviews which will be valuable for reference in fields in which it is not easy to collect information are the ones on "Physiological and Pathological Effects of Ultraviolet Radiation," by H. F. Blum; "Physiological Aspects of Genetics," by C. V. Taylor; "Visceral Functions of the Nervous System," by H. W. Magoun; "Temperature Regulation," by L. P. Herrington and A. P. Gagge; "Metabolic Functions of the Endocrine System," by B. A. Houssay and V. Deulofeu; "Physiology of Mammalian Semen," by J. MacLeod; "Endocrinology of Reproduction," by C. A. Pfeiffer; "Physiological Psychology," by N. Cameron and H. F. Harlow; and "Biological Assay," by C. I. Bliss and M. Cattell. The last-named is a particularly critical article, which deals with a topic of growing importance; it is well digested and full of information.

Other articles of general value to the physiologist are the ones on "Physical Properties of Protoplasm," by C. V. Taylor: "Developmental Physiology," by W. F. Windle; "Physiology of Bone," by F. C. McLean; "Energy Metabolism," by E. B. Forbes and L. Voris; "The Respiratory System," by C. L. Gemmill; "Muscle," by E. Fischer; "The Digestive System," by R. C. Herrin; "Blood," by H. D. Bruner; "The Lymphatic System," by P. D. McMaster; "Heart," by F. D. Johnston and F. N. Wilson; "Nerve and Synaptic Transmission," by B. Renshaw; "Liver and Bile," by J. L. Bollman: and "Sense Organs," by H. Davis and S. H. Bartley.

The subjects of temperature regulation, respiration, sense organs, heart, and biological assay are now much to the fore, and workers in many fields will find those contributions useful. Three of the articles intended have, for one reason or another, had to be omitted; in view of the present situation this is a surprisingly small number. But, as the editors say, "What a flood of discovery will be revealed in the first few years of the post-war world when the present barriers to intellectual co-operation melt away!" Yes, indeed.

WAR WOUNDS AND INJURIES

War Wounds and Injuries. Edited by R. Maingot, F.R.C.S., E. G. Slesinger, M.S., F.R.C.S., and Ernest Fletcher, M.B., M.R.C.P. With foreword by Lord Horder. Second edition. (Pp. 499; illustrated. 35s.) London: Edward Arnold. 1943.

The second edition of this compilation on war injuries has been largely reconstructed. Two new editors share the responsibility and many new contributors have been drawn in. The work now gives a fair representation of the views on war surgery at home. It is noticeable that none of the contributors have had active experience in the Middle East. The articles on peripheral nerve injuries by Highet and that on the chest by Tudor Edwards are perhaps of most outstanding value. All the other articles offer sound advice by those who have had practical experience of the subjects dealt with. In the section on burns the treatment described, though advised by the Navy, is not in line with the current ideas of the Army and of the Air Force. The book is well produced, and the illustrations, which are mainly photographic, show fair detail. Both the size and price of this edition have been approximately doubled.

Notes on Books

The Advancement of Science, No. 8, just published at 5s., completes the second volume of this, the official publication of the British Association for the Advancement of Science (Burlington House, London, W.). It was established by the Association shortly before the war as a quarterly, of which four parts made a yearly volume. In wartime the quarterly issue was found inexpedient, and the volume now completed covers the period since September, 1941, when the Association's Division for the Social and International Relations of Science held its conference on Science and World Order. That conference directed attention to a whole series of post-war problems bearing upon the impacts of science on society. Of particular interest in the present series of papers is the address on the Public Understanding of Science by Sir Henry Dale given on March 20, 1943, and Sir Richard Gregory's address on Science and the Press given on March 21.

A sixth edition of Prof. F. J. BROWNE'S *Advice to the Expectant Mother on the Care of her Health and that of her Child*, which first appeared in 1926, has been published by E. and S. Livingstone of Edinburgh at 6d., plus 2½d. postage. The booklet has been revised throughout, and there is a new short chapter on pregnancy and labour to help the expectant mother to co-operate with midwife or doctor.

Dr. W. GORDON SEARS, medical superintendent of the Mile End Hospital, has prepared a small work *Materia Medica for Nurses*, his object being to link up drugs and therapeutics with physiology and to give enough information to be useful to the nurse for reference after passing her examinations. Some stress is laid on therapeutic procedures, signs of overdosage, and points which the nurse can observe or has to carry out for herself. The guidance of a competent teacher is presupposed throughout the text, which is clearly written and practical in range. Edward Arnold and Co. publish the book at 5s.

Save the Children of Belgium is the title of an 8-page leaflet in which M. Emile Cammaerts (3, Hillside Road, Radlett, Herts) has collected available information on the food and health conditions (based on medical reports) of the children of Belgium. He also describes the scheme for restricted medical relief proposed by the Famine Relief Committee. Much of this material has already appeared in these columns, but brought together it makes out (from the medical point of view) an unanswerable case for sending a small monthly shipment of food concentrates to that stricken country.

Preparations and Appliances

HEAD TERMINALS FOR CONVULSIVE ELECTROTHERAPY

Dr. E. FRETSON SKINNER (Sheffield) writes: One of the minor difficulties of convulsive electrotherapy is that of easy application and removal of the head terminals. The usual method of a rubber band and pads is awkward of adjustment and time-consuming if large numbers of cases are to be dealt with, while the heavy calliper type of headpiece supplied by one firm is too heavy and cumbersome as well as alarming to the patient. For two years now I have been using a very simple home-made piece of apparatus, consisting of an adaptation of wireless head-phones in which the microphones are replaced by solid disks of fibre, into one face of which a metal plate is let and connected by a screw terminal going through to the other side of the disk with the necessary leads. The springs on the head-phones have been reinforced by two steel strip springs bound to the phone-springs with elastoplast strapping. The whole apparatus can be made for a few shillings and is extremely handy, as it can be slipped on to the head and removed in a moment.

Joseph E. Smadel (*J. clin. Invest.*, 1943, **22**, 57) found that 10 out of 45 sporadic cases of atypical pneumonia were caused by infection with strains of the virus of psittacosis. In no instance was the virus of lymphocytic choriomeningitis associated with the illness of individuals in the group, and in only two instances was influenza virus suspected as a possible aetiological agent.

MISLEADING MALARIA

BY

Sir MALCOLM WATSON, M.D., F.R.F.P.&S.

In view of the danger from malaria to our Armies operating in Southern Europe and other malarial areas Capt. Birks's paper, "Symptomatology of Malaria," in the issue of the *Journal* of June 26 is a timely warning of some of the ways in which malaria attacks without causing febrile symptoms, and so may mislead the physician. There are other ways in which "malaria kills, not in the hot blood of a fever, but in cold blood, masquerading as some non-febrile disease." The following is a summary of a paper, "Some Clinical Features of Quartan Malaria," by myself, which appeared in the *Malayan Medical Journal* in 1904 and the *Indian Medical Gazette* in 1905.

Quartan malaria rarely kills as a febrile disease, and is especially suitable for the study of chronic malaria.

In 18% of 66 cases pyrexia was absent
In 18% „ 66 „ „ occurred at long intervals
In 32% „ 83 „ oedema was a prominent feature
In 18% „ 83 „ „ overshadowed all other features

In some cases the combination of normal temperature, dense albumin in the urine, with blood and tube casts, had led to a diagnosis of acute nephritis until the discovery of quartan malaria parasites. This condition is much less common with the other parasites. In 20 of 83 cases it was diarrhoea or dysentery which brought the patient into hospital, and there was no complaint of fever. In 5 out of 83 cases there were abscesses—some large, multiple, and painless. In nearly all cases cough was common; in some there was severe bronchitis. It was the failure of an ulcer to heal that first put me on to the track of afebrile quartan malaria, and thence to afebrile malaria generally.

In an article entitled "Rare Nervous Symptoms produced by Malaria" (Watson, 1908) I drew attention to epileptiform attacks in B.T. malaria and paralysis of the sixth nerve, presumably the early symptom of malaria coma.

In a "Note on the Parasites of a Case of Malignant Malaria, with a Discussion of the Development of the Crescent" (Watson, 1903) I wrote, describing a peripheral blood film: "In many places groups of as many as 30 almost fully developed parasites were counted, reminding one of what is occasionally seen in cerebral and other capillaries. This suggested that red corpuscles infected by M.T. parasites develop adhesiveness, which accounts for the blockage of capillaries, and might explain the "generalized disease of arterioles and capillaries" suggested by Capt. Birks as the cause of the symptoms in his cases.

The full significance of unrecognized malaria I did not realize until, as a result of antimalaria work begun in 1901, the following figures were compiled:

Number of Deaths in Kland and Port Swettenham corrected for Deaths Occurring in Hospital

	1900	1901	1902	1903
Fever	259	368	59	46
Other diseases ..	215	214	85	69
Totals	474	582	144	115

Further experience of successful antimalaria work has consistently shown a decrease in "other diseases" such as diarrhoea, dysentery, convulsions, and anaemia.

Quinine Injections

Normally, quinine by mouth is sufficient, but there are many exceptions to the rule. A medical friend staying with me relapsed from B.T. malaria. His tongue became dry. He was given quin. bihydrochlor. 7 gr. t.i.d. At the end of 48 hours he still had fever and parasites. Meyer's reagent showed no quinine in the urine. Intramuscular injections produced the desired result.

When quinine is injected intramuscularly it is safer to limit the amount injected in one place to 5 gr., and less painful to the patient. In 1933 I carried out a series of experiments with guinea-pigs and rabbits. As the dose of quinine bihydrochloride was raised from 1 gr. to 5 gr. the oedema and redness, seen on cutting into the site of the injection 48 hours later, increased. On injecting 8 gr. extensive sloughing was observed. A patient came to me with both thighs puckered in dozens of places. She had had a course of injections.

An injection of morphine, with a good sleep, is appreciated by the patient after sleepless nights and severe headache, as doctors themselves will find if they contract malaria.

Hyperpyrexia

When I first went to the Tropics I wondered how I would treat hyperpyrexia in malaria in the absence of ice. It is true that the temperature in B.T. malaria often rises to 105° F. and over, but I have never seen hyperpyrexia endanger the patient's life. The late Dr. C. W. Daniels, who had a rich experience of malaria, both clinical and pathological, told me that this was his experience also in uncomplicated malaria. He thought the textbooks had inherited the heading from the pre-microscope days, when typhomalarial fever was a common diagnosis. When I did meet hyperpyrexia in other diseases it was easily controlled by sponging with or pouring on water of a temperature about 80° F., to the great comfort of the patient.

REFERENCES

Birks, P. H. (1943). *British Medical Journal*, **1**, 784.
Watson, M. (1903). *J. trop. Med.*, **6**, 221.
—— (1904). *Malay med. J.*, n.s., No. 1.
—— (1905). *Indian med. Gaz.*, **40**, 49.
—— (1908). *British Medical Journal*, **2**, 1358.

SCOTLAND'S HEALTH

It says much for the work of the Ministry of Food that the Department of Health for Scotland in the fourth year of total war can place "the nutritional basis of food rationing" second only to the Department's own efforts in the factors responsible for the satisfactory state of the public health during 1942. Other contributing causes are stated in the annual summary report of the Department to be the increased employment and purchasing power of the working classes (though it is difficult to see how the latter plays a part when consumer goods are so limited) and the mild winter. As in England, however, there was no absence of health problems.

The incidence of tuberculosis was higher than it has been for some years—9,126 notifications, as against 8,302 in 1941 and 7,484 in 1938. Deaths were 80 per 100,000 of the population, as compared with 83 in 1941 and 69 in 1938. New cases of venereal disease treated at Scottish centres numbered 10,999, compared with 10,530 in 1941 and 6,929 in 1939; there were more cases of syphilis and fewer of gonorrhoea. The report states that it is too early yet to judge the effect of Regulation 33B, but "common" sources of infection named so far have been few. The only other disease the increase in which can be attributed to war conditions is cerebro-spinal fever. The number of confirmed cases (1,621) was 247 fewer than in 1941, but it was still over five times greater than the figures for 1938 and 1939.

The infant mortality rate, which was 69.3 for the year under review, has only once been lower, and that was in 1939, when the rate was 68.5. The report of the subcommittee of the Department which has been examining this problem is expected shortly. Scotland now has 99 wartime nurseries for 4,353 children, as compared with 29 for 1,180 a year ago. About 1,000,000 people were vaccinated in Scotland during the small-pox outbreaks last year; eight deaths were recorded in each of the three principal centres of outbreak—Glasgow, Fife, and Edinburgh. References are made in the report to the successful "Clyde Basin Experiment," under which 3,758 workers have been medically examined, many by the specialist service provided, and 1,523 admitted to hospitals or convalescent homes.

On the subject of the Beveridge report there is the following comment: "The adoption of the proposals would involve the supersession of the present scheme of National Health Insurance, with its segregation of the insured population in financially separate approved societies and branches, charged with the administration of sickness, disablement, and maternity benefits. The present restriction of medical benefit to insured persons and the administration of this benefit by insurance committees would likewise disappear." The Department, like the Ministry of Health in England, is discussing the future of the medical services with representatives of doctors, hospitals, and local authorities. The Committee on Post-war Hospital Problems (chairman, Sir Hector Hetherington) is expected to report at an early date, and hospital surveys, which should be completed in the autumn, are being carried out by special commissioners.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY SEPTEMBER 25 1943

PNEUMOKONIOSIS AND WORKING CONDITIONS IN COAL MINES

A twofold problem confronted the Medical Research Council's Committee on Industrial Pulmonary Disease when it undertook to investigate chronic disease of the lungs of South Wales coal-miners. First, the nature of the disease and its occupational and geographical distribution in the South Wales coalfield had to be examined. Secondly, the effect of environment in the causation of the disease had to be determined, and preventive measures devised on this basis. The first part of the problem was medical and pathological; the second part required the study of the many factors in the working environment. A report on the first was published a year ago.[1] A second volume, containing reports by the teams who have been studying the environmental aspects of the problem, has now been issued.[2]

It was shown in the first report that the incidence of pulmonary abnormality, as judged by *x*-ray evidence, was related to the rank of coal being mined. The incidence and severity of the disease were greatest among those working at the coal face of anthracite mines, least in colliers employed in bituminous coal mines, and intermediate among those who mined steam coal. Within the anthracite area there were distinct local variations in incidence. That the chronic lung disease of South Wales coal-miners is due to the inhalation of dust was clearly shown. The committee recommended that it should be recognized as an industrial disease under the name "pneumokoniosis of coal-workers," and that the diagnostic criteria required for purposes of compensation should be extended to include the various lung changes of this disease discovered by the medical survey. The Workmen's Compensation Act, 1943, gives power to make compensation schemes on the basis of those recommendations.

The second report considers fully the concentration of dust in the air breathed by the collier at the coal face, the size of the dust particles and their nature, the composition and characteristics of the strata from which the dust is derived, the concentration in the air of the nitrous fumes from shot-firing, and the temperature and humidity of the air to which the miner is exposed when at work and during his journey to the surface at the end of the shift. As such an investigation was laborious it was not possible to study in detail the working conditions in all the mines included in the medical survey. A difficulty in an investigation of this sort is that conditions of work tend to change with the passage of time. For example, since the last war machine-mining has increased greatly in Britain. Pneumokoniosis may take years to develop, and the disease manifest now may have begun in the circumstances prevailing ten, twenty, or more years ago. An attempt was therefore made to select for investigation mines in which conditions had not changed much.

Mass concentrations of air-borne dust in a number of collieries in the anthracite, steam coal, and bituminous coal areas were determined by Briscoe and his colleagues. Their samples were later ignited and the ash was weighed; the mass concentrations of the whole dust and of the ash, and the percentage of ash in the dust, were thus ascertained. The incidence of pulmonary *x*-ray abnormalities was found to be significantly and positively correlated with the average ash concentration. High ash concentrations tend to be associated with high concentrations of the whole dust, and this probably accounts for the apparent correlation between the incidence of lung trouble and the total dust concentration. The incidence of pneumokoniosis does not appear to be related to the ash percentage *per se*. The findings of Briscoe and his team may be compared with Belt's conclusion in the earlier report that the dust-reticulation and fibrosis were due to silica, whether as free silica or silicates, rather than to coal. Estimations of the number and size of the air-borne dust particles by Bedford and Warner pointed to an association between the incidence of pneumokoniosis and the mass concentration of particles, particularly those below 5 microns in size, both of coal and of mineral matter other than coal. This evidence is quantitative and confirms that the incidence of lung disease is related to the amount of dust inhaled. Chemical and *x*-ray diffraction analyses of the mineral matter of the coal seams, of the air-borne dusts at the coal face, and of certain screened fractions of run-of-mine coal, were made by Hicks and Nagelschmidt. The dusts and screened fractions were all closely alike. The proportions of quartz in the rocks and air-borne dusts vary, but there is no clear relation to rank of coal or to incidence of pneumokoniosis, except that in the anthracite area the dusts generally have more quartz in the mines in which the incidence of lung disease is high than in those in which it is low. On an average, in all the mines the proportion of quartz in the dusts is 2%. Petrological examinations of the rock strata overlying the coal in different mines, made by Brammall and Leech, reveal a contrast between the shales in the anthracite and bituminous coal areas. Owing to the effects of compaction and metamorphism there are in the anthracite area an increase in the content of secondary quartz and mica, and a differentiation in the ground mass, or ultimate cement substance, of the shale. Hydrated ferric oxide and alumina, both of which depress the solubility of silica, are less evident in the shales of the anthracite area than in those of the bituminous area. Whether directly or indirectly, the incidence of pneumokoniosis appears to be associated with these geological changes brought about by pressure.

Although the lung disease of the coal-face workers differed in certain respects from the silicosis resulting from exposure to dust containing a very high proportion of quartz, that of the anthracite colliers was generally believed to arise from the inhalation of dust. Yet some held that exposure to dust was of secondary importance. Access to anthracite mines is usually by a slant driven in from the surface, not by a vertical shaft, and men are conveyed to and from work in spake trains. Bronchitis from chill during spake-riding was thought to facilitate the adverse effect on the lung of the air-borne dust at the coal face. Miners attributed the disease mostly to the irritant effect of the nitrous fumes due to shot-firing. The thermal conditions in seven of the mines were examined by Bedford and Warner. It appears that the incidence of lung trouble is influenced neither by the temperature nor by the humidity of the air at the coal face. As the miners ride in spake trains from workings to the surface they chill down, and there may be some association between this and the incidence of pneumokoniosis. But spake-riding seems at most to be but a contributory factor. As to nitrous fumes, Graham and Runnicles show that the average concentration liberated during shot-firing rarely exceeds 6 parts per million by volume in samples taken during the period of a shift, or 4 parts per million over a 24-hour period. Although no direct relation can be found

[1] *British Medical Journal*, 1942, ?, 43.
[2] M.R.C. Spec. Rep. Ser., No. 244, London, 1943.

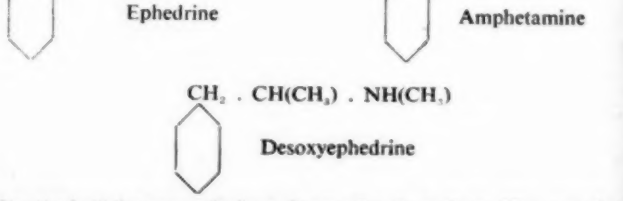
between the concentration of nitrous fumes and the incidence of lung disease, it is prudent to regard low concentrations of these fumes as a possible contributory factor. Relegation of shot-firing to a non-coal-getting shift would reduce exposure to fumes, and also the risk of exposure to exceptionally high concentrations of dust.

American workers have shown that dust concentrations can be reduced a good deal when all hewn material, coal or rock, is copiously sprayed with water before it is shovelled or otherwise handled. There are practical objections to the excessive use of water at the coal face, but spraying the hewn material with modest quantities of water from A.R.P. stirrup pumps has been shown by Bedford and Warner to be highly effective. High standards of maximum permissible dustiness cannot yet be laid down, but Bedford and Warner put forward standards which, the committee agrees, might well be taken as the target for to-day. It is suggested that minerals other than coal should not exceed 1 mg. per cubic metre, and coal 10 mg. per cubic metre, both these figures referring to particles 5 microns or less in size (larger particles are probably of relatively little pathogenic importance). Such concentrations cannot be measured directly by the ordinary gravimetric methods, but they can be estimated from the numerical concentrations of dust particles. With the thermal precipitator—an inconvenient instrument for routine work—as the sampling instrument the mass concentrations named above represent 60 particles of minerals other than coal and 700 particles of coal per c.cm., all particles below 1 micron in size being ignored. Various methods of dust sampling give widely divergent results, and before other instruments can be used to apply the suggested standards, study of the comparative sampling efficiencies of the instruments under actual mining conditions will be necessary. This work should be carried out without delay.

The apparent relation between incidence of pneumokoniosis and dust concentration, even in the bituminous mines of South Wales, makes one wonder what will be the effect of the widespread adoption of mechanized methods of mining, for some of the mechanical devices employed produce much dust. High dust concentrations have been reported in mines in other British coalfields. Actuated mainly by the desire to prevent coal-dust explosions, mining engineers have for some time been testing and applying various methods of dust reduction at loading points and other specially dusty localities. The findings of this report should be a stimulus to increased activity in that direction. Despite the large amount of work recorded in this symposium, the Committee on Industrial Pulmonary Disease has been unable to draw final conclusions on the causation of the pneumokoniosis or the differences in incidence observed in the South Wales coalfield. For some reason the dust of anthracite mines is more dangerous than that of bituminous mines, and a similar state of affairs exists in the U.S.A. and the U.S.S.R. The difference may lie in the quantity of dust or in its character, or both factors may be involved. The work now reported gives little support to the view that quartz is the main hazard, yet it does not make it possible entirely to exclude the quartz theory. Animal experiments still in progress may help to resolve this point. But whatever may be the ultimate reason for the greater danger of the dust in anthracite mines, a reduction in the amount of dust breathed by the miner is the one immediate measure which is likely to diminish the incidence of pneumokoniosis. To this end the committee advocates: (1) the maintenance of adequate ventilation; (2) the systematic use of water at the coal face to prevent the dispersion of dust; (3) the allaying of dust in roadways and at loading points; (4) reduction of shot-firing to a minimum, and the firing of shots when the fewest men are exposed; (5) the relegation of all the processes of ripping to a back-shift. A further recommendation is that suitable means to prevent chill should be used during spake journeys.

A STIRRUP CUP FOR THE PANZERS

No pharmacological innovation is so likely to catch the popular imagination as that which claims, in the words of Macbeth, "to raze out the written troubles of the brain," and this explains the stir caused by amphetamine in the years immediately before the war. On the Continent a substance known as "pervitin" became as popular and as much abused. Pervitin, or *d*-desoxyephedrine hydrochloride, the properties of which have recently been reviewed by Ivy and Goetzl,[1] is of special interest because it is apparently being used by the German armed Forces. This substance, marketed as methedrine in this country, is related to ephedrine and amphetamine, and in its pharmacological properties closely resembles the latter.



Its topical interest derives from the fact that, like amphetamine, desoxyephedrine causes a temporary increase in efficiency and initiative, with elation, lessened fatigue, and increased ability to concentrate. This may lead to irritability and sleeplessness, and, as with amphetamine, prolonged medication has a dwindling effect because of the accumulation of the need to rest. So far as intelligence tests are concerned, Jacobsen and his co-workers[2] found that these substances increased the speed of work without changing its accuracy, and there seemed little difference between amphetamine and desoxyephedrine. Although the published data on the effect of desoxyephedrine on physical performance are inadequate, it is probable that the drug, by lessening the sense of fatigue, increases output at the expense of physical reserves. It will not, therefore, increase the total work capacity over a long period of time, though some of the German workers suggest that the depressant effects of fatigue can be counteracted for about two weeks.[3] Its use has been recommended for such persons as engine-drivers and night watchmen, as well as for the personnel of armoured units. It has also been used for raising the morale of patients after operation or in the last stages of chronic or malignant disease. Almost every German clinician with experience of the drug values it in this connexion, for it seems to counteract the depression caused by morphine without impairing its analgesic properties.

The therapeutic dose recommended is 3 to 6 mg. by mouth; the optimal dose is nearer 9 mg., but side-effects may be experienced at this level. The German authors claim, though their evidence is not well supported, that desoxyephedrine is superior to amphetamine because the difference between the therapeutic and toxic dose is greater; this explains their concentration on this particular compound. The dextrorotatory form is very much more active than the laevorotatory, and in both animal and human experience *d*-desoxyephedrine hydrochloride is slightly

1 *War Medicine*, 1943, **3**, 60.
2 *Acta med. scand.*, 1939, **100**, 159, 188, 203.
3 *Fortschr. Therap.*, 1941, **17**, 37, 90; *Med. Welt*, 1941, **15**, 198; *Dtsch. med. Wschr.*, 1939, **65**, 754.

more active than amphetamine sulphate, weight for weight. No deaths or serious intoxication have been reported, even with a dose as high as 200 mg.: this, however, will cause excitement, sleeplessness, mydriasis, nausea, vomiting, tachycardia, and a rise in blood pressure. No habit formation or addiction has been observed in the strict sense of the word; tolerance to the psychological effect is readily acquired, as with amphetamine. Various authors have suggested that the development of tolerance in patients of weak character may lead to increased and protracted medication to stave off for as long as possible the accumulated fatigue; for on withdrawal of the drug after a large increase of the dosage the patient may sleep for several days. The dangers of this drug are therefore the same as those of amphetamine, in that stiffening of the dose leads to undesirable cardiovascular and metabolic reactions. The German Government placed it under the narcotic law in 1941. The contraindications to its use include cardiovascular disease, thyrotoxicosis, and insomnia.

Desoxyephedrine has also been tried in nearly every condition for which amphetamine is used. As an analeptic or stimulant in narcosis it has much the same effect as amphetamine; but both drugs are inferior to picrotoxin in barbiturate poisoning, and their general use is not recommended in the absence of further evidence. Dodd and Prescott[4] have compared desoxyephedrine with other pressor agents in a series of 54 surgical operations. They found that with 10 to 20 mg. intravenously or 15 to 30 mg. intramuscularly there was a very satisfactory return of the blood pressure to normal, maintained over several hours. Desoxyephedrine was thought to be more efficient than even pholedrine or neosynephrin. Animal experiments have shown that in common with many other sympathomimetic agents desoxyephedrine causes tachyphylaxis (subsequent injections causing a smaller rise in blood pressure than the first one); this will certainly not exclude its use over a limited period of time, but it is well to bear the phenomenon in mind. It may be argued that the drug is contraindicated in surgery because its analeptic action may lead to the use of more anaesthetic; certainly the dose used by Dodd and Prescott would be greater than that desirable for an unanaesthetized patient. It is hoped that further experience will show whether these disadvantages are theoretical rather than practical.

CHEST SURGERY FILM

The British Council's film "Surgery in Chest Disease" had a special showing in London last week at the Curzon Cinema. It is the first of a series of medical films to be made for the Council. They are intended primarily for oversea medical audiences, and the choice of subjects and the planning of individual films have been undertaken by the medical department of the British Council, with the advice of a medical subcommittee formed for the purpose, and with the close collaboration of the Council's film department. In the various stages of planning the advice of a committee of chest surgeons, and of other individual medical experts, has been freely sought and taken. Most of the film was made in London at the Brompton Hospital. Apart from the expert advice which has gone into the preparation of the script, full collaboration of the staff of the hospital was secured in the actual shooting of the film, though extraordinary inconveniences were so caused. The purpose of the film, as explained to a deeply appreciative audience by Surgeon Rear-Admiral Gordon-Taylor on Sept. 14, is to indicate the scope and progress of chest surgery and collateral services in Britain. The film opens with sequences showing a mass radiography survey of industrial workers. Then a radiologist is shown examining the miniature *x*-ray pictures projected on the screen. One of them is suggestive of disease of the lung, and the patient is referred to the chest hospital, where a full-size radiograph is made and he is examined by a physician. The findings point to cancer of the lung. The patient is next admitted to hospital. At this point a number of sequences depict other patients in various stages of treatment and explain the rationale of the procedures. The story of the original patient is then taken up again, and he is shown undergoing confirmatory diagnostic procedures and later having special breathing exercises to make him fit for removal of the affected lung. The theatre sequences depict all the important stages in the operation, which are seen with far greater clarity than would have been possible by standing at the surgeon's side. Interposed with these shots are diagrams explaining the anatomical relationships of the parts seen. The pre-operative procedures, the form of anaesthesia employed (administration of a volatile anaesthetic through a tube in the bronchus of the healthy lung), and auxiliary measures, such as drip blood transfusion during the operation, receive attention. After suture of the operative wound the patient is wheeled back to the ward, still receiving the transfusion and also oxygen. Stages in recovery are indicated in later sequences, including the treatment of a post-operative effusion. The patient is then shown at a later stage convalescing at a hospital in the country, where special rehabilitation measures not only aid his recovery medically but retrain him for his old job. In the final pictures he is seen being examined by the surgeon who operated upon him, who tells him that he is now fit to return to work.

The main case depicted in "Surgery in Chest Disease" illustrates a striking advance in surgical practice. Ten years ago a diagnosis of cancer of the lung was a death warrant from which there was no escape. To-day suitable cases can be cured and restored to full working capacity by surgery, though the operative risk is still great. Further, the film as a whole illustrates the growing importance of special techniques and of team work in modern medicine. Surgeons, physicians, anaesthetists, radiologists, pathologists, resident medical staff, sisters and nurses, physiotherapists and hospital almoners—all play an essential part in a complex series of processes which result in the saving of a life. The actual operation takes its logical place among a series of other special measures which precede and follow it, and which are essential to its success. Full marks must be given to everyone who helped in producing this masterly film—including the patient.

THE STOMACH AT WORK

Of late, interest in test meals has been waning, and this probably because but little return comes from this tedious procedure. Yet analysis of the gastric secretion may throw some light on gastric physiology in the individual patient. S. Wolf and H. G. Wolff,[1] for example, have been able to observe simultaneously changes in motor activity, vascularity, and secretion in the stomach of a patient with a permanent gastric fistula resulting from an operation performed nearly forty years earlier because of a benign stricture of the oesophagus. In the fasting stomach they found that the phase of active contractions was accompanied by heightened vascularity of the mucosa and an increased rate of production of acid. The blushing of the mucosa was found to be proportional to the increase in blood flow as determined by a thermal gradientometer. After the

[4] *British Medical Journal*, 1943, **1**, 345.

[1] *Amer. J. Physiol.*, 1943, **138**, 309.

subcutaneous injection of histamine or the intragastric administration of alcohol or beef bouillon there was invariably an increase of vascularity and acid secretion. While active contractions did not occur unless the mucosa was red, intensified hyperaemia and high acid output were not always associated with increase in gastric motility—a finding in conformity with the results of W. F. Anderson.[2] Much work is required from the muscle and secreting cells of the stomach during periods of activity, and there is little doubt that the enhanced blood flow is necessary for the supply of extra oxygen and energy-yielding material. On the other hand, cellular activity is probably not the only cause of vasodilatation. Thus, Kuntz and Hazelwood[3] found that applying warmth to the abdominal wall led to a vasodilatation in the serous coat of the small intestine. Of much interest to the clinician are the suggestions put forward as a result of these investigations. When a large volume of juice with a high titratable acidity is obtained from an unobstructed stomach, it may be deduced that there is an efficient blood flow through the mucosa and that motility is low. On the other hand, a small volume of juice of high acidity indicates hyperaemia of the mucosa with vigorous gastric contractions. Juice of low acidity, especially when of small volume, is very suggestive of a poor blood flow and a quiescent stomach. It is tempting to go a stage further and offer suggestions for treatment. Enough, however, has been said to renew interest in the performance of test meals and, it may be, in the evaluation of gastric tonics and sedatives.

ABSENTEEISM AMONG WOMEN WORKERS

In a report issued by the Industrial Health Research Board,[4] S. Wyatt, R. Marriott, and D. E. R. Hughes describe the results of observations made at two Royal Ordnance factories, one of which, Factory A, is five times larger than Factory B and is situated in an isolated position. The samples of women investigated number 819 and 495 respectively, and they were tested over a six-weeks period in the summer of 1942. All the women were on a three-shift system, and they changed over at weekly intervals. They worked for six shifts, averaging 7½ hours, so the weekly total of 45 hours was not excessive. In spite of this, the absenteeism averaged 16% at Factory A and 10% at Factory B, or well above what is usually experienced in times of peace. It is therefore important to ascertain, so far as possible, the causes of the wartime excess. At Factory A it was twice as great in the morning shift as in the afternoon and night shifts, largely because of the great absenteeism experienced on Saturday mornings. No less than 46% of the married women and 30% of the single women were then absent, doubtless because they wished to go shopping, but at Factory B the Saturday morning excess was not nearly so marked. It has been suggested that the women should be asked to work on Sunday mornings instead of Saturday mornings, but numerical evidence of the effect of such a change on absenteeism is lacking. The women at the two factories in question worked an afternoon shift on Sundays, and kept nearly as good time as on other afternoons, so the experiment seems to be worth trying. The women were specially liable to lose one shift per week, and this was due mainly to different workers being absent in different weeks, and not to habitual absentees. Comparatively few workers lost from two to five shifts, but many of them lost the full six shifts owing to sickness. The causes of this sickness were not investigated in the present inquiry, but we are told that it forms part of a larger study of absenteeism, and suggests the need for examining the personal causes of absenteeism and for an individual method of treatment, as well as attention to the general conditions of work.

[2] *Lancet*, 1943, 1, 40.
[3] *Proc. Soc. exp. Biol.*, N.Y., 1940, 43, 517.
[4] *A Study of Absenteeism among Women*. Emergency Report No. 4 of Industrial Health Research Board, 1943. 12 pages. H.M. Stationery Office. (2d.)

EFFICACY OF LIVER PILLS

Carter's little liver pills are sold to the public as a remedy for the conglomeration of symptoms which goes under the title of liverishness. Tiredness, headache, spots before the eyes, slight nausea, and constipation have from time immemorial been blamed on the liver, and the phrase "biliary purge" has found its way into the pharmacopoeia. There is no evidence that these symptoms are due to liver disease, and some of them, at least, are associated with abnormal intestinal movement. Nevertheless transient liverishness is common and can be made much of by suggestion. It therefore becomes important to know on what basis claims to cure the condition rest.

Briefly, the claim is that, whereas ordinary purgatives merely cause evacuation of the bowel, Carter's little liver pills flush the poisons out of the system with two pints of bile. Each pill is said to contain 0.25 gr. of Curaçao aloe and 0.0625 gr. of podophylli resina. The makers supply a sheet of instructions which tell us that the pills are the standard medical formula for waking up the liver. "They wake up those two pints of cleansing liver bile, make your whole system clean and fresh, and give you bright eyes and a clear skin again." It is stated on this instruction sheet that constipation, depression, coated tongue, sallow skin, gas, and nausea are usually due to a disturbance of the normal flow of bile, and that if the liver does not pour out two pints of cleansing bile juice into the system every day, "Your food can't digest—it simply decays inside you and constipates you, and poisons you." It is probable that few pharmacologists would agree with these generous estimates of the quantity and the antiseptic power of the bile. But do Carter's little liver pills in fact promote the flow of bile? A partial answer to this question has been supplied by the recent work of Ivy, Roback, and Stein.[1] In a series of experiments on dogs they have investigated directly the effect of Carter's little liver pills on the flow of bile and on the contraction of the gall-bladder. The observations were made by tying the cystic duct, cannulating the common bile duct, and recording the pressure in the gall-bladder by means of a manometer tied into the fundus. These methods had previously been used by Ivy when he showed that an extract of the intestinal mucous membrane given intravenously would cause the gall-bladder to contract. This extract was called by him "cholecystokinin." In the present series of experiments cholecystokinin was used to show that the gall-bladder under observation was capable of contraction before and after the administration of Carter's little liver pills. Dogs weighing 15 to 20 kilos were used and the pills were injected intravenously in solution in alcohol or intraduodenally in water at body temperature. In some cases the pills were first incubated with pancreatic juice or with duodenal contents. The doses were equivalent to from two to four pills at a time. In no case did the pills produce any significant increase in the flow of bile from the liver or in the pressure inside the gall-bladder. These experiments point to a distant goal—the authoritative study of the pharmacological action of all proprietary preparations and the unbiased publication of the results.

Prof. G. Grey Turner will deliver the presidential address to the Medical Society of London on Oct. 18; his subject is "Transplantation of the Ureter."

[1] *Quart. Bull. Northwest. Univ. Med. School*, 1942, 16, 298.

THE PUBLIC CORPORATION

BY

D. HARCOURT KITCHIN
Barrister-at-Law

[*Continued from p.* 371]

Broadcasting

Wireless broadcasting in this country is administered by yet another public corporation. The B.B.C. is incorporated by charter, not by statute. This is possibly because it does not need for its work to encroach at any point on private rights; and a charter has the great advantage over a statute of obviating the lengthy and cumbrous passage of a Bill through Parliament, with its unpredictable dangers and obstacles, of being easily capable of amendment, and of allowing much greater detail. The charter and licence (under the Wireless Telegraphy Acts) both gave the Postmaster-General political, financial, and technical control. On paper, therefore, the Corporation appears to have little liberty, but constitutional practice gives it a great deal. The Postmaster-General has always, while taking responsibility for broad issues of policy, left the Corporation a free hand on minor issues, domestic policy, and day-to-day control. Its members are called governors, and they are the chairman, vice-chairman, and such other persons as the King appoints in Council from time to time. They hold office for a term stated on their appointment, not exceeding five years, and on retirement are not eligible for reappointment unless the Postmaster-General certifies that this is in the public interest. The provisional number is seven, but the Crown reserves power to increase or reduce it. The chairman's yearly salary is £3,000, and that of the other governors £1,000 each, with expenses.

A governor ceases to hold office if his appointment is terminated by the King in Council, if he holds any office or place of profit in which his interests may in the opinion of the Postmaster-General conflict with the interests of the Corporation, if he becomes of unsound mind or bankrupt or compounds with his creditors, if he resigns in writing to the Postmaster-General, or if he absents himself from the meetings of the Corporation continuously for three months without the consent of the Corporation, and the Corporation shall resolve that his office shall be vacated. The charter does not exclude Members of Parliament, but by custom a member resigns his seat on appointment. Vacancies are certified to the Crown by the Postmaster-General and filled in Council. The Corporation's chief executive officer, appointed by it, is the Director-General, and it may also appoint such other officers and staff as it may think necessary for the efficient transaction of its business, and fix their remuneration; it may remove any officer subject to its contract with him. It may meet and may make such regulations for the conduct of its business as it thinks fit, but its quorum is settled by the Postmaster-General. It may appoint committees for any purpose, and their conclusions are subject to its ratification, and it may also appoint advisers or advisory committees.

The Corporation's financial powers are specified, and its accounts are audited by chartered accountants approved by the Postmaster-General. It submits to him an annual report and accounts, and its books are subject to his inspection at all reasonable times. It may at any time apply for a supplemental charter or an Act of Parliament. The Crown keeps power to extend the operation of the charter after the time limit. Provision is made for the voluntary or compulsory winding-up of the Corporation.

The history of the B.B.C. taken as a whole does not suggest in any way that the joint-stock company form of its organization and its constitutional relations with Parliament and the public are unsuitable for its purpose. Its problems, great though they are, seem capable of solution, and its potentialities of being realized, within its present framework. The B.B.C., like the Forestry Commission and the Central Electricity Board, is especially interesting in the present connexion because it operates, as would a health services board, a nation-wide utility. Its regional organization (suspended during the war) is appointed and controlled from the centre. The autonomy possessed by the regions has varied from time to time, but in the nature of the work must remain rather strictly limited. The suggestion has often been made that each region should be controlled by an independent corporation, but unless the "federal constitution" dividing the sovereign power between the central and the regional corporations were drawn with superhuman wisdom and foresight, the difficulties of maintaining national co-ordination would probably be too great. A better solution seems to be to have satellite regions as hitherto, but to give them as much freedom as possible and the benefit of the best possible local advice. The Corporation has elaborated in its Listener Research Department a highly effective technique of ascertaining the opinions of listeners about its various activities, and the reports of the department are carefully studied and acted on by executive officers.

National Electricity Supply

The next of the great public utility corporations in seniority is the Central Electricity Board. This body was formed by the Electricity (Supply) Act, 1926. The political tension (1926 was the year of the General Strike) was reflected in heated opposition to the Bill in Parliament as rank Socialism. Much was made of an argument which has probably by now died a natural death: that if a Socialist Government came into power the Minister of Transport could pack the Board with Socialists. In fact, appointments to such boards have never been noticeably more political than preferments to the judicial bench. The Central Electricity Board consists of a chairman and seven other members appointed by the Minister of Transport "after consultation with such representatives or bodies representative of the following interests as the Minister thinks fit—that is to say, local government, electricity, commerce, industry, transport, agriculture, and labour." The Board is broadly representative and essentially an organizing body. It is assisted in technical matters by committees of experts and by its staff. Unlike the Metropolitan Water Board and the Port of London Authority, it was not created for the express purpose of acquiring undertakings and managing them. It did this only in the last resort, when the owner would not co-operate; normally the existing owners continued to own and manage their stations. The chief property of the Board is the transmission lines.

The chairman and members are appointed for a stated term of not less than five or more than ten years. The chairman is a full-time salaried officer; the members receive honoraria. Their remuneration (an unusual provision) is in the absolute discretion of the Minister. The Board must appoint a secretary, and is given discretion to appoint other staff and pay them salaries, remuneration, pensions, and gratuities. The salaries or fees and expense allowances to be paid to members are determined by the Minister. Anyone aggrieved by a decision of the Board can invoke the arbitration of a barrister qualified for appointment to judicial office and appointed by the Minister from a panel set up by the Lord Chancellor (in Scotland an advocate on a panel set up by the Lord Provost of the Court of Session). The arbitrator may summon qualified assessors to sit with him.

The Board's success, after the failure of the Electricity Commissioners appointed under the earlier legislation to do similar work, was not due to its compulsory powers, which have hardly been used. In Gordon's opinion it succeeded because of its form: "a new administrative body, independent of existing undertakers, empowered to carry through the desired reforms." When its composition was being planned its creators naturally had in their minds the idea of a representative body on the lines of the P.L.A., but they soon found this impracticable. "The only suggestion put forward was a body representative of large consumers, ratepayers, producers, and municipalities. This proposal would have made the Board a scene of continuous conflict among competing interests with no obvious broad harmonizing influence, and no machinery to effect such harmonization outside the authority itself"—the two factors essential to the success of a representative board. The new body had therefore to be appointed from above. The Government likewise refused to give specific representation to labour and other interests—not to shut out the expression of their views but because they rightly felt that the positive action of the Board would be fatally hindered if some of its members were present for the express purpose of advancing the interests

of sections to whom they were responsible. They therefore determined on a small group of persons "of wide experience in affairs and business who, if possible, should not be directly representative of any industry, but should very impartially consider the interests of all." (*Official Report*, House of Lords, Nov. 30, 1926, vol. 5, col. 860.) The Minister was therefore given a general direction on the choice of interests he should consult.

The Government also had difficulty in deciding who should appoint the Board. The Lord Chancellor or the Treasury, it was argued, would be more impartial than a Minister and prevent undue influence over the Board's policy. On the other hand, they reflected that to associate the Board with the Treasury would tend to put it on a Civil Service basis, and to remove it entirely from the purview of the House of Commons would make impossible any ultimate democratic control over its personnel. Hence the choice of the Minister of Transport. Actually, in the first appointments, all the leading interests most closely affected, except agriculture, were represented.

Parliament has direct control over the C.E.B. and has the opportunity by Special Order of approving or rejecting its more important proposals. These are constructional rather than operational. The Board's doings have rarely aroused discussion in Parliament. As it is financially autonomous it cannot be discussed on the annual vote of the Ministry. No private member has ever moved a motion concerning it; its finances were once mentioned on the adjournment, and questions have occasionally been asked about it. The Minister of Transport answers, but successive Ministers have preferred to leave the Board to do its ordinary work undisturbed.

Ministers do not give information about the Board's own affairs except what is published in its annual reports. The only continuing control over it is given to the Electricity Commissioners. The Board's relations with distributors, owners of stations, and other interests is made subject at many points to their approval. The appeal to the arbitrating barrister was instituted because Parliament feared that the commissioners, being also appointed by the Minister, could not be trusted as a final appellate tribunal. They have actually proved to be a very good and impartial one, but the Board has succeeded so well in maintaining the good will of the undertakers by negotiation and compromise that arbitration has not been used. The commissioners have co-operated cordially with the C.E.B., and "the relations between these two bodies form a unique example of control over a public corporation combining non-political supervision with ultimate responsibility to Parliament." The positive, co-operative attitude of the Board has been the chief factor in its success despite many difficulties and handicaps. It has actively created a permanent demand for current in many directions, and carries on general propaganda of all kinds to stimulate the use of electricity. "The degree of success already achieved by it despite its limited powers is perhaps a greater tribute to the administrative potentialities of the public corporation than would be afforded were it more fully clothed with authority."

London Transport

The London Passenger Transport Board is the largest and one of the most interesting of these bodies. It was created by the London Passenger Transport Act, 1933, to provide "an adequate and properly co-ordinated system of passenger transport" for the London area. For this purpose it had transferred to it most of the electric railway, omnibus, and tram services already operating, and was directed to administer them as one undertaking. The selection of its members is unusual. At first the Government (Mr. Ramsay MacDonald's coalition) proposed that the Minister of Transport should appoint them, but for various reasons the opposition to this plan was so strong that a board of appointing trustees was formed. This consisted of the chairman for the time being of the L.C.C., a representative of the advisory committee, the chairman of the Committee of London Clearing Bankers, the president of the Law Society, the president of the Institute of Chartered Accountants, and the chairman or a member of the Board itself. The qualifications required of the chairman and members are set out in unusual detail: they "should be persons who have had wide experience, and have shown capacity, in transport, industrial, commercial, or financial matters, or in the conduct of public affairs." Two members must be persons with not less than six years' experience in local government within the L.P.T. area. Membership of the House of Commons disqualifies. Appointment is for a stated period of not less than three or more than seven years, but after a member's term of office runs out he may be reappointed. The Minister may remove a member from office for inability or misbehaviour, but he must first consult with the appointing trustees. These words are probably quite sufficient to preclude a removal for political reasons. The agreements the Board makes with undertakings need confirmation by the Arbitration Tribunal, which may modify them. This body consists of three commissioners, of whom one is president and must have legal experience, and the others must be experienced respectively in business and finance. They are appointed by the Lord Chancellor. A party aggrieved by its decisions may appeal by way of case stated to the Court of Appeal.

Labour problems are handled by a negotiating committee consisting of six representatives of the Board and six representatives of the employees, two from each of the three trade unions concerned. Questions of remuneration which this body cannot settle are referred to a wages board representing the Transport Board, the Trade Union Congress, the Co-operative Union, the Association of British Chambers of Commerce, and the National Confederation of Employers' Associations. Superannuation is dealt with fully in the Act, and a standing arbitrator is appointed by the Lord Chancellor. Existing officers and servants of absorbed undertakings were transferred and/or compensated. The Board has power to promote and oppose legislation. The Minister may hold an inquiry into any complaint made of the Board's activities. In spite of its serious financial handicap, the Board worked with great success until war broke out, when the Minister of Transport took over the administration of its undertaking along with those of the railways. Doubtless, when the emergency is over its earlier autonomy will be restored.

The unique mechanism for appointing members of the L.P.T.B. does not seem to invite imitation in later statutes. At the time it was introduced political feeling ran high, the word "nationalization" had a sinister magic of its own, and the Government of the day had no doubt that Ministers would take the opportunity to make political appointments. These appointing trustees, as Gordon points out, are entirely ignorant of the problems and needs of London traffic, and responsible to no one. They are quite unqualified for the duty of introducing from time to time suitable "new blood," fresh spirit, and ideas. The Minister, aided by the advisory committee and the advice of the interests concerned, and guided by the sense of public responsibility without which he would not have been appointed to office, is so qualified. In practice, Ministers do not abuse their power of appointment to further political ends, and to do so would involve them and their Government in a storm of criticism and condemnation that would far outweigh the advantages of the appointment. It is worth noting that the Minister may remove a member from office "for inability or misbehaviour." Whatever be the rights of the matter, the trustees (doubtless guided by consultation with the Minister) have selected a strong Board, each member of which is an expert in some aspect of London transport.

The L.P.T.B. has ample powers and autonomy for its purposes. The Minister takes no responsibility for most of its doings, and his replies to questions are mostly limited to information supplied by the Board itself. His influence over it is probably less than that of a Minister over any other public corporation, for complaints and appeals are heard by specially constituted tribunals. Most complaints about services and fares are actually made direct to the Board through its public relations office, and the appellate jurisdiction of the Railway Rates Tribunal has seldom if at all been invoked. The reconstituted Traffic Advisory Committee has been an effective link between the Board and public opinion. The Board has always been actively sympathetic to public feeling, an attitude which is common to all the public corporations and is the most important single factor in their success. It is, however, still in its youth: the developments of the period immediately after the war will test it severely.

[To be concluded]

THE ROYAL COLLEGE OF SURGEONS

PRESIDENT'S ADDRESS TO FELLOWS

A meeting of Fellows was held at the Royal College of Surgeons of England on July 21, to which members of the Association of Surgeons and their guests were invited. The chair was taken by the President, Sir ALFRED WEBB-JOHNSON, and 19 other members of the Council were present.

The President said that the Council had been encouraged by the opinions expressed at the last Annual Meeting of Fellows and Members to call this meeting; they would gladly consider the reintroduction of regular meetings of Fellows, and would like to know the views of those present. They welcomed the increased interest taken by the Fellows generally in the management of the College affairs.

College Affairs and Policy

The President referred to the recent changes in the Fellowship examinations. The primary had been made entirely a postgraduate examination, with pathology introduced as an additional subject to anatomy and applied physiology. The interval between graduation and entry for the final examination would now be two years for all candidates, provided that they had passed the primary and complied with the regulations. The Court of Examiners had been enlarged to 20, 12 members taking part in each examination. The rota system thus established, and the concentration of the examination programme, would enable surgeons with many commitments or from distant localities to serve on the Court with less interference with their other duties, and would render possible the representation of more medical schools and more specialties. Two women examiners had been appointed to the Boards of Examiners for the Conjoint Examination—one in anatomy and one in midwifery. Another new departure was the appointment of professors in the College, part of whose duties was performed elsewhere—Prof. A. Sorsby, research professor in ophthalmology, and Prof. W. E. Gye, director of the Imperial Cancer Research Fund.

The damage done by enemy action to the Royal Colleges of Physicians and of Surgeons had opened up the question of the three Royal Colleges working together either in a combined building or in adjacent buildings on some suitable site. His suggestion that Lincoln's Inn Fields had great advantages for such a Collegiate building was received with applause. The Council was prepared to consider alternative sites, but the present building of the College of Surgeons and the adjoining sites owned by it might provide an area more than sufficient for the requirements of the three Colleges and for future developments. In the opinion of the Council the suitability of the Lincoln's Inn Fields site should be seriously considered and should not be lightly rejected, as the value of the buildings still standing was estimated at £200,000.

The position in the College of the special branches of surgery was an important matter, and the Council was sensible of the necessity for catering for their needs in such affairs as representation on the Council and the granting of suitable higher diplomas. The recent change in the format of the Council election papers had been designed to emphasize the importance of the Council's being largely representative of the medical schools and of general and specialist surgery throughout the country. The training of surgeons was another matter now receiving active consideration, and the President advocated an interchange of views between the Royal Colleges of England and Edinburgh and Ireland in regard particularly to examination in the basic sciences, to the place of special subjects in the final examination, and to the length of the interval between qualification and taking a higher diploma. The Council had declined a suggestion that Fellowship examinations should be discontinued during the war.

Criteria for consultants had been provisionally agreed by the Standing Joint Committee of the Royal Colleges of Physicians, Surgeons, and Obstetricians and Gynaecologists for the guidance of the newly formed Central Medical Academic Council, composed of representatives of the Royal Colleges and of the medical faculties of the universities. These criteria, however, could not yet be regarded as settled.

Representatives of the Colleges had given evidence before the Interdepartmental Committee on Medical Schools (the Goodenough Committee). The President reported the very definite view of the Council that there must be a portal to the medical profession under the sole control of a purely professional body, and the College had therefore disagreed with the suggestion that a university degree should be a *sine qua non* for medical qualification. (Applause.)

The Beveridge Plan

A Representative Committee of the profession was engaged in discussions with the Minister of Health. The Royal Colleges were represented by their Presidents, and he himself had insisted that he must be regarded as a representative of consultant surgery. For this purpose the Royal Colleges had held a conference of representatives from all centres in order to obtain the views of consultants throughout the country. The Representative Committee maintained that some freedom of choice must be left both to doctor and to patient, and declined to countenance the conversion of a free profession into a public service. An individual must be free to enter the medical profession and to practise his profession when registered. The medical profession must have a large say in the organization and management of a National Health Service. The administrative structure must therefore be such as to allow of a generous representation of the medical profession. The health service must be really comprehensive in character; the local authorities as at present constituted did not provide satisfactory areas for dealing with the needs of the population. Some scheme of registration was essential. It was the declared intention of the Government that opportunities for private practice should be maintained, and the most sensible and reasonable way of providing for this seemed to be to apply the national contributory scheme only to those who needed such provision. It was generally agreed that in planning for "positive health" and the prevention of disease the non-medical proposals of the Beveridge report were of far greater importance than any revolutionary changes in medical practice. He referred particularly to the improvement of housing, the avoidance of mass unemployment, the provision of children's allowances, disability pay, and old age pensions.

Resolutions passed by the Meeting

1. Moved by Surg. Rear-Adml. ROBERT MILNE and seconded by Col. F. P. MACKIE: That this meeting of Fellows welcomes the opportunity which the occasion has provided for consultation and for informing them of the proceedings of the Council, and hopes that the Council will arrange for meetings of Fellows on future occasions.
2. Moved by Brig. A. HEDLEY WHYTE, and seconded by Mr. G. T. MULLALLY: That this meeting of Fellows welcomes the various changes which have been made by the Council and approves of the line of policy outlined in the President's report.
3. Moved by Mr. W. MCADAM ECCLES and seconded by Mr. R. M. HANDFIELD-JONES: That this meeting of Fellows hereby expresses a hearty vote of thanks to the Council for arranging this meeting, and in particular to the President for the way in which he has conducted it.

DOMICILIARY NURSING SERVICES

Seven secretaries of District Nursing Associations—one in London and the others in the Midlands and the North—have produced an account of the actual conditions in district nursing, midwifery, and health visiting,* well worthy of attention in the light of the many proposals for reconstruction of social services. It is a record which comes down to "shillings and pence," setting out the precise facts and figures for recruitment, training, living conditions, hours on and off duty, salaries, future prospects, and pensions, and a review of the Canadian Home Nursing Service is given for comparison. Proposals are made for the better regulation of off-duty times for district nurses, also for a unified pension scheme or for interchangeability between existing schemes for all these workers. The review leads up to a recommendation that a national body should be set up under the auspices of the Queen's Institute, charged with the duty of formulating a national provident or contributory scheme for district nursing to cover the whole country and also to secure greater uniformity in the nature and basis of grants received from public funds. At present the grants are left to the discretion of each local authority.

**The Domiciliary Nursing Services.* Published by Taylor and Bloxham Ltd., 96, Highcross Street, Leicester. (1s. 6d. plus postage.)

Nova et Vetera

SALERNO: ITS MEDICAL SCHOOL AND ITS MEDICAL LEGENDS

Salerno, the first important town on the European continent to be occupied by the Allies, has a special place in medical affection. It is the site of the earliest "modern" medical school. Its very name conjures up romance. A note on the school and on some of its early legends may be welcome.

During the "Dark Ages"—that is, from about A.D. 400 to about 1200—the great tradition of Hippocrates and Galen faded. All theoretical medical knowledge lapsed. Even the bare elements of anatomy were forgotten. Prognosis became a childish rule of thumb; therapeutics a ridiculous and disgusting drug list; medicine a collection of formulae punctuated by more or less sacred incantations. Yet there was one area where a slightly higher standard prevailed. In South Italy dialects of Greek were spoken, and there a faint travesty of the ancient medical learning still lingered. This was notably the case at Salerno. Of physicians in its neighbourhood we get a few glimpses in the eighth and ninth centuries. By the middle of the tenth century the fame of the place as a medical centre had reached far afield.

Many romantic legends have gathered round the name. Fancy has promoted the "ladies of Salerne" into the first corporation of women doctors. The first modern anatomical text is Salernitan, and it appropriately substitutes the structure of the pig for that of man. The most famous of medical poems, the "Salerne School," has been turned into every language. Some of the MSS. are addressed to "England's king," held to be William the Conqueror's eldest son, Robert of Normandy (1054-1134), who was certainly in Salerno in 1098. Two of the opening lines of the poem are known to all:

> "Use three physicians still. First Doctor Quiet,
> Next Doctor Merryman, and Doctor Diet."

Perhaps the oddest of the Salerno legends ascribes the foundation of the school to four practitioners—a Greek, a Latin, an Arab, and a Jew. None of the current romantic stories about the early days of Salerno is even approximately true, but the last, suggesting a mixture of four cultures in this region, does faintly reflect an actual situation.

A Battleground of Interests

After the fall of the Gothic power in the sixth century South Italy became for centuries a battleground of conflicting interests. It was a mosaic of small States, usually under the nominal rule of Byzantium and influenced by a variety of cultures. Invaders from the north seldom reached the south, and Byzantium, securely ensconced on the Adriatic seaboard, disputed the mastery with native chiefs and, from the eighth century onward, with Saracens also. The prevailing language was largely Greek, of which the colloquial speech bears traces to this day. The imperfect grasp of the Byzantines, however, gave opportunity for entry of other tongues. Latin dialects were spoken in many places. In others Greek dialects were replaced by forms of Arabic patois. Moreover, material and literary remains tell of a vigorous development of a Hebrew culture in this region. We devote a few sentences to the little-known Saracen and Jewish elements.

In the seventh century the dominion of the Crescent had extended along the southern shores of the Mediterranean, from the Red Sea to the Atlantic. In 711 Tarik crossed into Spain with a Berber army and gave his name, the Mount of Tarik—Gebel Tarik—to the natural fortress the title of which has been corrupted into Gibraltar. This movement that carried Islam across the narrow Strait of Gibraltar threw it across the wider Sicilian Channel in the eighth century and on to the mainland in the ninth. In 827 the Emir of Kairouan in Tunisia began a systematic invasion. Palermo fell in 831 and was a strong base for raids on the Italian coasts. Things moved more slowly in those days than in these, but in 846 the arms of the Crescent were carried to Rome itself. At Salerno and elsewhere Saracen colonies were established.

For our knowledge of the Jewish element in South Italy at this period we have a Hebrew chronicle from 850 to 1060, telling of many Jewish settlements in the Salerno area, and a Hebrew medical work of about 950. But above all we have the extensive Latin writings bearing the name of Constantine the African. He was an Arabic speaker who made a long stay in Salerno, was converted to Christianity, and became a monk at the ancient Benedictine house of Monte Cassino. Constantine died in 1087. He spent much of the last ten years of his life turning into Latin, with help of a local scribe, medical works of certain Jewish physicians of Kairouan. At the same time an Archbishop of Salerno was engaged in translating medical works of Greek into Latin. Constantine himself is said to have acted as the oriental secretary of the Norman invader of Salerno.

End of the Great Medical Period

These literary events were contemporary with the Norman conquest of Sicily and South Italy, which was itself contemporary with the Norman conquest of England. There was some intercourse between Salerno and England, and one of the few surviving Anglo-Saxon medical texts, written soon after the Norman Conquest, is a translation of a Salernitan document. This was the great period of the medical school of Salerno. During the twelfth century Bologna, and later Padua, became the chief medical centre. In 1224 a university was formally instituted as a rival to papal Bologna by Frederick II, the great enemy of the Papacy, at Naples. This was fatal to the neighbouring medical school at Salerno and its importance began immediately to wane. Literary activity continued there to some extent and the school prolonged an ever more enfeebled existence to the very end of the eighteenth century. Gradually, however, it became a place of bogus degrees and not very authentic ancient memories. Napoleon closed it finally in 1811. Since then its literature and its legendary associations have provided much fruitful material for medical historians, and not a little for writers of romance—medical and other.

C. S.

Correspondence

Early Recognition of Cancer

SIR,—Everybody will agree with your correspondent Dr. Joseph Walter (Sept. 4, p. 313) concerning the necessity for making the public cancer-conscious. I would, however, like to point out that for four years before the war the British Empire Cancer Campaign had been carrying out work on this subject through its Central Propaganda Committee by means of educational publications and lectures. In 1936 arrangements were made by the Campaign for lectures to be given to the laity, and these were only discontinued because of the war. During those four years 35 counties were covered and in all 1,256 lectures were given to audiences totalling 57,851—i.e., an average attendance of 46. The lectures were given by medical men after they had been "briefed" by the committee and given skeleton lectures on which to base their own talks. The audiences consisted largely of members of the Women's Institutes, Townswomen's Guilds, National Council for Women, British Legion, Rotary Clubs, Toc H, etc. At the lectures nearly 750,000 educational leaflets were distributed.

When the suggestion was first made that lay lectures should be given there was considerable opposition on the ground that cancer phobia would be caused among the public. The very numerous spontaneous letters received from individuals in the audiences who attended these lectures convinced the committee that this was not true, and indeed it is quite obvious that knowledge is the only way of getting rid of cancer phobia which afflicts so many human beings. Although it is hoped that the Campaign will be able to carry on this work after the war, nevertheless I feel that this very important method of getting early diagnosis will have to be taken on by the organizations which will be set up under the new Cancer Act.—I am, etc.,

MALCOLM DONALDSON,
Chairman, Central Propaganda Committee,
British Empire Cancer Campaign.

Perforated Gastric Ulcer in Youth

SIR,—In your issue of Aug. 21 (p. 256) Dr. M. A. Conyngham mentioned a case of perforated gastric ulcer in a boy of 17. This calamity has occurred at earlier ages.

In 1910 the late Sir Joseph Leech of Newcastle-upon-Tyne operated on a boy of 13 who presented a perforated ulcer on the anterior surface of the stomach near the pylorus. He suffered from a second perforation at the age of 16 and a third at 18, when I had to deal with an ulcer at the cardiac end just in front of the hilus of the spleen. During convalescence he had a severe attack which led me to reopen the abdomen in the confident expectation of finding a fourth perforation. But no, a perisplenic abscess had burst and suddenly flooded the peritoneal cavity. According to the practice of those days, the belly was thoroughly irrigated and drained, and, in the hope of cutting short these catastrophes, I made a gastro-enterostomy, which had to be anterior. Three weeks later, when we thought he was about ready for discharge, he developed acute intestinal obstruction, which further laparotomy revealed to be due to bands among coils of small bowel. By this time the Kaiser's war was in full swing, and at a critical stage my patient was accepted for service and soon found himself in France, where he enjoyed excellent health. On the cessation of hostilities a return to civil life and work in the coal mines was followed by an attack of sub-acute obstruction, which yielded to non-operative management. But his work did not prove suitable, and a return of indigestion was followed by an attack of severe haematemesis. After much medical care he left the North and adopted an open-air occupation, which seemed most suitable, for he was rewarded by a return to a long period of quite good health.

Just before this war—some 28 years since his first perforation—this man again came under my care, in poor condition, with great pain and much abdominal tenderness. Laparotomy confirmed the presence of a secondary peptic ulcer at the site of the anastomosis, with some obstruction among the small coils from strong bands. Recovery was quick and for some two years complete, but since the Coventry "blitz" I have not been able to trace my old friend.

If I were reporting this case, apart from the interest of the early age of perforation, it would have been under some such heading as "The Persistence of the Peptic Ulcer Tendency."—I am, etc.,

British Postgraduate Medical School. G. GREY TURNER.

X Rays and the Colon

SIR,—I was present at the meeting to which Sir Arthur Hurst refers in his letter (Sept. 4, p. 310), and was sorry that he had not time to qualify what appeared to be a sweeping condemnation of barium enemas as an aid to the diagnosis of spastic colon.

His letter suggests that he has been unfortunate in some of his radiologists, as I have not come across the specialist radiologist who has given "radiological reports ascribing symptoms to various *x*-ray findings." I have always understood that one should report the *x*-ray appearances with their significance to the doctor and not the patient, bearing in mind that ours is only an aid in the complete investigation of the case.

Most of us are chary of diagnosing a gastro-intestinal case on a skiagram without screening. Although we may sometimes see our mistakes when we know the surgical or post-mortem findings, I doubt whether as a class we are as exceptionally ignorant as the letter appears to suggest, although a few radiologists at large hospitals may be appointed without the desiderata of a large radiological and general experience.—I am, etc.,

Richmond. DENYS B. I. HALLETT.

Stilboestrol for Prostatic Enlargement

SIR,—There seems to be neither rhyme nor reason in this treatment. A measure of success has been claimed without serious attempt to explain the *modus operandi*.

Actually the side-effects provide the clue, gynaecomastia being an invariable accompaniment of large dosage of stilboestrol in the male. In effect stilboestrol in the male stimulates the rudimentary female structures into activity; the larger the dose the greater the activity. In the case of simple enlargement—i.e. adenoma—or of cancer of the prostate there is nothing to support the view that stilboestrol directly affects the new growth. I suggest that if the case be treated with large doses of stilboestrol at any stage where the original prostatic tissue has not been entirely replaced, the prostatic tissue remaining will be so strongly stimulated to activity and growth that it will take the upper hand and will inhibit further encroachment by the neoplasm.

It would follow from this that the *entire* prostate might be considered to be a rudimentary female structure—not so fantastic a view, perhaps, when it is considered that the prostate has yet to reveal its function.—I am, etc.,

J. A. L. MAGEE, M.B.

H 11 for Cancer

SIR,—Regarding reports on the value of H 11 and other drugs used in the treatment of cancer, it would be of value to have fuller reports on the cases which are cited in your correspondence column and for which vague cures and inhibitory actions are claimed.

Dr. J. H. Hannan writes in your correspondence column (Sept. 4, p. 314) that he had success with H 11 in a case of carcinoma of the vulva where radium and *x*-ray treatment failed. There is no mention here of a biopsy having been taken. Does the author of the letter really know whether there was a recurrence? Is he acquainted with the numerous cases where radiotherapy has appeared to fail and later the "recurrence" is found to be of a simple inflammatory nature?

If we are to assess these drugs, it is essential that accurate scientific case records should be made, and a diagnosis of malignant disease without histological confirmation cannot generally be accepted. This would seem to be especially important where a recurrence of malignant disease is suspected.—I am, etc.,

GEORGE W. BLOMFIELD,
Medical Director, Sheffield Radium Centre.

SIR,—With reference to H 11, it may be of interest to record the results of treatment by my colleagues and myself in fairly advanced cases of (1) rectal cancer; (2) sigmoid cancer; (3) secondaries following ovarian cancer; (4) secondaries following breast cancer; (5) ulcerating breast cancer. Treatment in each case failed and the patient died from cancer. In the first 4 cases treatment was prolonged and intensive. In Case 5 treatment with H 11 was discontinued after 2 months as no improvement was apparent.

It is also claimed that H 11 ointment will remove warts, and although it has been used in one case consistently for 3 months, no improvement was observed.

It will therefore be seen from the above that our results were completely negative.—I am, etc.,

Birmingham. IVOR RADNOR, M.B.

The Mastoid and D. and V.

SIR,—May I take this opportunity of replying to the criticisms which my paper on this subject has provoked.

Dr. McGuckin (Aug. 21, p. 245) asks for proof of the presence of mastoiditis; if his interest in the subject is deep enough for him to be present at a few operations his doubt will be satisfied. He expresses distress that children should be condemned to a double mastoidectomy because a gland in the posterior triangle can be rolled under the finger; I share his distress. Should he refer to my paper he will find that no such suggestion is made. It is definitely pointed out that glands in the posterior triangle are an important physical sign among others as an aid to diagnosis. Dr. McGuckin also asks for proof of my statement that all the patients I have operated on would have died without surgical aid. I would point out that progressive mastoiditis is a fatal disease unless treated surgically.

Dr. Worrall's letter (Aug. 28, p. 280) is important, and his suggestions with regard to parasympathetic over-activity and shock should prove of value to physicians. It may well be that suitable treatment with ephedrine, atropine, and HCl will prevent a catarrhal mastoiditis becoming purulent, thereby rendering surgical treatment unnecessary.

Dr. Bruce Williamson's experiment with charcoal was unknown to me; I thank him for bringing it to my notice. With regard to proof of mastoiditis before the onset of diarrhoea and vomiting, I would point out that it is not uncommon to see patients in hospital who have recovered from some airborne infection who develop fever, head-rolling, crying out, and

putting a hand to the head; in addition such cases may present pink tympanic membranes and enlarged glands in the posterior triangles before the onset of diarrhoea and vomiting.

Dr. Emily Simon's letter is of special interest. I have several times diagnosed petrositis before operation, and in two such cases have seen the sudden onset of a double sixth-nerve palsy which has cleared up after operation (double Gradenigo's syndrome). I think it unlikely that petrositis can occur except from an antecedent mastoiditis.—I am, etc.,

Birkenhead. P. W. LEATHART.

Health and Tonsillectomy

SIR,—In mass investigations into the results of tonsil and adenoid operations upon ear trouble (Sept. 11, p. 334) it is necessary to realize that a previous history of otitis media probably means that the affected ear is a "weak spot." It is not reasonable to expect tonsillectomy and removal of adenoids to cure temporal bone disease.

With regard to the common infectious diseases of childhood, tonsillectomy does appear to prevent faucial diphtheria. Neither the guillotine nor the dissection method gives as a rule 100% of perfect results. It is, apparently, some of the "tonsillotomies" which are referred to in the statement that the tonsillectomized group had a 1% record of tonsillitis compared with 5% for the other group.

Careful mass investigation results would be useful as to the effects of tonsillectomy upon tuberculous adenitis (there seem to be fewer scarred necks nowadays). Reports dealing with the incidence of colds might deal with the question whether adenoid "recurrence" had taken place and whether the nose and maxillary antra were healthy or not.—I am, etc.,

Manchester. W. BRYCE MCKELVIE.

Artificial Insemination

SIR,—I am afraid that I cannot agree with Dr. Mary Barton in her easy assumption that artificial insemination is—to use her own phraseology—medically, ethically, or socially justifiable.

Medically it may work. If eugenists are consulted, it is possible that a woman may be able to produce a magnificent animal by artificial insemination, whether from her husband or some other selected stud male. But—and here the social aspect is involved—is a fine body of a man or woman necessarily socially desirable? Dr. Barton seems to forget that men are not cattle, and that the sex life of animals is far simpler than that of man. Man has a mind, which is formed far less by the magnificence or otherwise of his body—important as this may be as a contributory factor—than, so to speak, by a subtle form of gestation as between the minds of his parents.

Even if no ethical grounds can be found against artificial breeding, we are up against very practical psychological objections. It may well be that certain primitive types of women might not suffer any trauma, nor the offspring either. But we do not want the primitive to breed so much as the intelligent, cultured, and sensitive, who are the real assets to the community. And it is here, if nowhere else, that the methods advocated are bound to come unstuck. Any woman I have spoken to is revolted at the idea of artificial methods being used: they feel it violates something sacrosanct as between them and their husbands. Occasionally the maternal impulse is so strong that they will put up with it—provided the husband is the father of the child. But I have yet to meet one to whom the idea of insemination by a stranger is not anathema. In some measure this applies also to the husband's attitude.

But what of the child? I know very well, from my experience in psychotherapy, of the deep scars left on the mind of a child which is not produced under the best conditions—which are those of mutual love, leading to sexual intercourse for the purpose of producing that child. Where so intimate and sensitive a thing as the sex relation between cultured people has been tampered with, I think it is certain that the child must suffer. And when a psychologically damaged child grows up, society suffers too.

Man may be an animal. But he is animal *plus*, and I think that before plunging into human stud-farming this must be taken into account. Man has the animal instincts and desires in him, and they need to be dealt with adequately. But happiness is not necessarily the result of fulfilling these instincts *à tort et à travers*. As has been pointed out, humanity needs to be sure that its instincts are made to subserve human teleological ends, and there are occasions where these involve sacrifice, even of so primal a need as maternity.—I am, etc.,

London, W.1. L. J. BENDIT, M.D.

SIR,—The medical profession seems for long lightheartedly to have been making it possible or at least easier for diabetics, young cases of pernicious anaemia, mental defectives, etc., to reproduce themselves. Surely we ought to stop short on our sentimental journey and consider whether enabling those who are sterile without artificial aid to reproduce is really likely to be an effective long-term contribution towards increasing the birth rate. Is not this one of the essential points which Dr. Mary Barton so much wishes us to consider.—I am, etc.,

London. C. RICKWORD LANE.

Induced Pneumoperitoneum: A Fatal Case

SIR,—In view of the interest aroused by the discussion on peritoneoscopy recently published in the *Proceedings of the Royal Society of Medicine* (July, 1943) and reported in the *Times* (Aug. 25), in which the safety of the procedure is stressed and no death attributable to it recorded in a large series of cases, it may be worth recalling a case in which injection of air into the peritoneum proved fatal owing to a rare anomaly.

In 1924 or 1925 I witnessed what was, I believe, the first induction of pneumoperitoneum for the purpose of radiography carried out at a certain teaching hospital. The patient, a young woman, was suspected of having tuberculous mesenteric glands. Almost as soon as the induction had begun she became dyspnoeic and complained of pain in the chest. The flow of air was stopped, and resumed after a few minutes. She then collapsed, the needle was withdrawn, she was returned to bed, and died soon after. The post-mortem showed bilateral pneumothorax with collapse of both lungs. A number of small holes were discovered in the diaphragm connecting the peritoneal with both pleural cavities. I have no access at the moment to reference books, but presumably persistence of pleuroperitoneal communication is very rare.—I am, etc.,

Lincoln. C. NEWLYN SMITH.

Specialist Courses for Service M.O.s

SIR,—May I endorse most emphatically the opinion Dr. L. W. Aldridge so ably expressed in his letter (July 17, p. 88). The opportunity to resume postgraduate study with a view to higher qualifications ought to be extended to every ex-Service medical officer who desires it after the war, and should not depend on the private financial resources of the individual.

The value of the work done by young specialists in B2 jobs in the E.M.S. cannot be questioned; but it is equally beyond dispute that the sacrifices they have made and the risks they have accepted do not compare with those borne by their colleagues in the three Services. Yet after the war is over, unless the Government and the teaching authorities of the profession have ready a scheme such as Dr. Aldridge suggests, the ex-Service doctors cannot hope for equality of opportunity with their civilian contemporaries.

I have twice raised the point with the British Medical Association during the war. A reply by the Deputy Secretary stated: "No ex-Service doctor will be handicapped either in competing for appointments or in postgraduate study by reason of his service with the Forces." So far from reassuring me I must confess this caused me considerable misgiving. For one thing it ignores completely the fact that the handicap already exists and must be overcome, not overlooked. For another, while undoubtedly offered in good faith, its comforting optimism is disagreeably reminiscent of some of the promises held out during the last war. It is natural that some medical officers should be far more concerned with their chances of becoming surgeons or physicians after the war than with the terms and conditions of post-war general practice. Such doctors neither ask nor expect preferential treatment, but they do look to their teaching institutions and the Government for an opportunity when their present job is done to equip themselves to follow their particular vocation.—I am, etc.,

D. STAFFORD-CLARK, M.B., B.S.

Refresher Courses for Service M.O.s

SIR,—Under conditions of active service the work of the regimental M.O. is limited to a small variety of cases and a large amount of his time is spent on strictly non-clinical subjects; all the really ill men are sent to hospital, and more often than not it is impossible for him to check his diagnosis. In this kind of work it is very difficult to preserve one's knowledge and the truly medical atmosphere of the teaching hospital and of civilian practice.

I have discussed this problem with a number of young medical officers out here. We all feel that after the war refresher courses at all teaching schools and hospitals will be urgently required for the young qualified men who have returned from the Services to take their place in civilian life. This should be the responsibility of the State, who sent them to war and who will need them efficiently equipped for the requirements of civilian practice.—I am, etc.,

C. GILES,
Capt., R.A.M.C.

B.N.A.F.

Public Opinion on Health Services

SIR,—I welcome Dr. Shackleton Bailey's rejoinder (Sept. 4, p. 311) to my letter if it leads to clarification of the issues involved and enables me to correct the unfortunate impression he seems to have gathered that I was either sneering or contemptuous, for I was innocent of any such thought or feeling.

I think Dr. Bailey's objections arise mainly from a difference of outlook or experience rather than any dispute about facts. If his pessimism is justified his conclusions may perhaps be also. I know enough about medical practice to realize that *The Citadel* is not all exaggeration, but I still have greater confidence in both my professional brethren and my fellow citizens than he appears to have. I do not believe that most doctors are seriously tempted to bow to the popular clamour of the patient, as he implies, and I am perfectly sure that most patients do not value their doctor in the proportion to which he gives way to them, but in proportion to the way in which he seems to understand them and their difficulties as well as their diseases, and also on the extent to which he gives them disinterested advice.

Dr. Bailey's doubts are also shown in his first letter, where he specifically speaks of a "less stable body of opinion" as marking the democracy of the future. In so far as this is a correct judgment it can only mean an opinion less instructed in the points at issue, in fact exactly what I call "ill-instructed popular clamour." I believe it is the duty of the profession to see that so far as possible the electorate is well instructed about matters of health, and I am quite sure that so far the electorate, and possibly Parliament itself, are woefully ignorant about the implications of the proposed changes in the medical profession, some of which are specifically mentioned in the Beveridge report. So far people have been feasting on the sugar of the pill—to which they are welcome—but some of us are genuinely concerned whether the bitter part of the pill is finally going to make the patient better or worse. To take one small example. Paragraph 426 states that "it is a logical corollary to the receipt of high benefits in disability that the individual should recognize the duty to be well and to co-operate in all steps which may lead to diagnosis of disease in early stages when it can be prevented." This sounds admirable, but in fact it means that under the Beveridge scheme, if the doctor advises a barium meal, a biopsy, or the extraction of teeth, etc., the patient will be in duty bound to submit or forfeit his benefits. Are we doctors really so confident in our omniscience that we think it wise to put the patient in such a dilemma, and are high benefits wisely purchased at the price of personal liberty? Is it really better to force a person to do right than to allow the possibility of making mistakes, which is the inevitable price of moral choice and the development of personality? Many such problems arise both for patients and for doctors, and few of them have been propounded to the electorate, in whom, for years to come, these fundamental issues will bring forth good or evil fruit. Until these have been faced how else can one describe popular opinion as anything else but ill instructed?

Dr. Bailey's letters are nearly all politics, so may I make one observation about the constitutional issues he raises? While no one would challenge the authority of Parliament, according to the Constitution it should have been dissolved nearly four years ago. Few believe that it now represents the true feeling of the country, except in our desire to win the war. The Government has itself recognized these facts by promising that it will not introduce any controversial legislation. Few topics could, however, be more controversial than to alter the status of a whole profession. If this were essential for the continued existence of the nation or even a fundamental condition for its social progress we could hardly demur. It is, however, as Beveridge himself recognizes, only incidental to his scheme, which specifically avoids laying down any conditions about the way medical attention should be obtained. The demand for it is political, pure and simple. As such we have every right to resist it, and should, in fact, be perfectly within our legal rights in refusing point blank to accept it. It is no function of democracy to expropriate any body of citizens and forcibly alter their conditions of employment, apart from the extreme necessities of war. If we doctors need more clear thinking and plain speaking on these subjects, how much more the millions who, in spite of Dr. Bailey's doubts, do look to doctors to give them sound advice, even though, like a night call, it might be to our own inconvenience.—I am, etc.,

W. N. LEAK.

Winsford.

Unity in the Profession?

SIR,—The statement in Dr. George F. Buchan's letter (Aug. 28, p. 278) that "the Society of Medical Officers of Health does, in fact, support the policy of a whole-time salaried service, but they do not suggest its immediate adoption" demonstrated the difference in outlook of doctors who are in private practice and the public health officials. We hear a lot about "unity of the profession" from the leaders of the B.M.A., but how can this be possible with such divergence in ideals of practice? Dr. J. M. O. Rees of Guildford (*Supplement*, Aug 21, p. 25) has pointed out very clearly the differences in the three types of service. By far the major portion of us in private practice do not desire any form of State-controlled salaried service. We are determined to keep our freedom.

Dr. Buchan in his clear exposition, which leaves no doubt as to the views of his society, says there is "no hurry" and gives very good reasons. The Government, however, in the meantime could make all necessary arrangements for central and local control, and in that transition period "all reasonable methods of medical practice should be tried out before any final conclusion was reached." This plan detailed by Dr. Buchan, this transitional period of experimentation, this play with doctors, exposes the cold official mind of the public health officer. It is rather a cruel try-out and would be a torture to the great majority of practitioners. Remember Dr. Buchan was *chosen* to serve on the Representative Committee. Do you desire men of his outlook—control and regimentation—to be *elected* to the Negotiations Committee?—I am, etc.,

DONALD WATSON.

Bradford.

Hospital Posts under Local Authorities

SIR,—I must admire the honesty and courage of "Former Councillor" (July 10, p. 54). It raises an issue which the profession should seriously consider when discussing the future of medical practice in this country after the war. His remarks from the point of view of the councillor prompts me to put on record a few of my own experiences as a candidate for hospital posts under local authorities.

About eight years ago a certain city council advertised for R.S.O. to their city hospital, stressing the necessity that candidates should possess the F.R.C.S. diploma together with experience of operative surgery. A preliminary short list of six was drawn up. Three candidates in this list possessed the F.R.C.S.Eng. and all were men with operative experience. The other three were "local" men, not one of whom possessed the F.R.C.S., but one of them held the D.P.H. and had been for some time a schools medical officer. This latter candidate, however, had one qualification which proved to be a trump card—to wit, he had "influential" friends on the selection committee. Before the final selection the three Fellowship men were, with one stroke of the pen, excluded from the list, and at the interview the gentleman with the D.P.H. was duly appointed to the post of R.S.O. to the hospital.

By a curious coincidence the same post—at the same hospital—again became vacant and was duly advertised. Once again the council was most insistent that the candidates must possess the F.R.C.S. diploma and "must have had extensive postgraduate operative experience." This time four candidates were short-listed—two "local" men and two others. Neither of the two "local boys" had been qualified more than 3 years, neither possessed the F.R.C.S., and neither could be described as having had extensive postgraduate surgical experience. The other two candidates were both over 30 years, both held the F.R.C.S. diploma, and both had had at least 10 years of hospital surgical experience. At the interview one of the "local boys" was appointed. To quote a familiar expression, "The job had been cooked." It later transpired that the appointed man was well known to and "liked" by the medical superintendent—not to mention members of the committee. The disappointed candidates collected their "travelling expenses" and left the scene, dazed and embittered and wondering what sort of a profession is this that can tolerate such gross injustice. After this experience I became quite convinced that the possession of a higher qualification could prove to be a serious handicap to a candidate when applying for a post in a hospital at which the medical superintendent himself did not possess any higher degrees.

This system whereby lay committees appoint medical men to hospital and other posts is both ridiculous and demoralizing. After many years of professional training a doctor finds himself thrown on to the tender mercies of lay councillors who frequently cannot tell one diploma from another, and are often completely incapable of distinguishing an experienced surgeon from a newly qualified man. In my experience, lay committees are far too frequently infected by "local politics" and "graft" to be relied upon to give medical men a square deal at interviews. Medical appointments should be made by a body of completely impartial medical men who would see to it that the best man gets the job. If we are to have a form of State Medical Service we must see to it that the control is "medical."—I am, etc.,

EDGAR W. THOMAS.

Fitness for Factory Work

SIR,—I have the impression that medical boards and practitioners, consciously or unconsciously, are passing girls and women fit for work in factories or in the N.A.A.F.I. who have not made the grade for the women's Services—e.g., the A.T.S., etc. Some of those girls shortly after their call-up to the factories are being sent back home in a worsened state of health. In not a few cases they may, as a result of thoughtless direction to such work, suffer the consequences for a long time, if not for life. If a girl is unfit for the women's Services she is still less likely to be fit for the N.A.A.F.I. or work in a factory, which is infinitely heavier and more exacting besides having longer hours. I wonder if it is the question of pension which is the deciding factor whether medical boards direct that a girl is fit or not for the Services?

How is it that girls who are unfit for the Services are referred to the Labour Exchange as fit for posting to factory work, etc., and to almost any part of the kingdom, with little or no reference to their previous medical history or home environment? At the last minute I stopped a girl who had had recently active tuberculous glands of the neck being sent from our comparatively healthy country atmosphere to a factory in an industrial town. I think it is the duty of the doctor to safeguard the interests of his patients. Is this not a very important field for the family doctor to make sure that at least his patients are fairly treated and not directed to work which may affect their futures?—I am, etc.,

Dingwall. KENNETH I. E. MACLEOD.

Masseurs in the R.A.F. Medical Service

SIR,—I should like to correct a statement made by Dr. G. L. Kerr Pringle in his letter (Sept. 11, p. 341) that the Royal Air Force Medical Branch does not employ male personnel in massage. I may state that 50% of the medical orderlies employed in massage in the R.A.F. are male orderlies. All of these male orderlies are fully qualified masseurs, being either civilian or Service trained, and either being in possession of the necessary civilian certificates or having passed the necessary Service tests and examinations to qualify as masseurs.—I am, etc.,

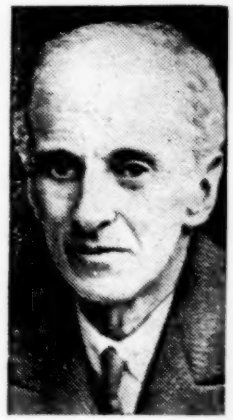
D. MCLAREN,
Air Ministry, W.C.2. Air Commodore, D.D.G.M.S.

Obituary

SIR WILLIAM WHEELER, M.D., F.R.C.S.I.

Consulting Surgeon to the Royal Navy in Scotland

Sir William Ireland de Courcy Wheeler, whose death took place suddenly in Aberdeen on Sept. 11, will be mourned by many on both sides of the Irish Sea and across the Atlantic. He was not only a brilliant operating surgeon, a clinician of much wisdom, and an authoritative writer on surgery, but a man with a great capacity for friendship. The relation of the surgeon to his patients is, in the nature of things, occasional, and less likely to be productive of friendships than the relation of the physician or the family doctor. But with Wheeler the making of friends and the inspiring of affection amounted to a sort of genius. He was a man to whom people gravitated, not only for surgical help but for general advice and guidance. When, 11 years ago, he left Ireland for England many expressions of regret and farewell were tendered by bodies over which he had presided and social circles in which he had moved, but none touched him as deeply as a testimonial from numbers of his old patients in County Kildare, where he had had his home, as his father had before him.



[Press Portrait Bureau

It was in Dublin that he made his reputation as a surgeon, but long before he left Ireland that reputation was as firmly established in Great Britain. He had been for many years a leading figure in the interchanges of British and Irish medicine, with which politics has never been suffered to interfere. He was known as a writer of one or two textbooks and of many monographs on surgical subjects. His outstanding work in the war of 1914-18, when he served in France with the rank of lieut.-colonel and was mentioned twice in dispatches, and knighted at the end of the war, had brought him into close association with his British colleagues. His work in orthopaedics, as head of the military surgical centre at Blackrock, near Dublin, had led to a close friendship with the late Sir Robert Jones and other orthopaedic surgeons on this side, and Wheeler served on the Advisory Council on Artificial Limbs to the Ministry of Pensions. In the British Medical Association, again before he settled in England, he had been a member of the Council and of the Irish Committee from 1926 to 1933, and was largely instrumental in bringing about the highly successful meeting in Dublin in 1933. Nothing gave him greater pleasure than to support the presidency of Dr. Moorhead, his old friend of forty years' standing.

The occasion of his leaving Ireland for London when he was already over fifty years of age was the opportunity offered to him by Lord Iveagh, a member of the Guinness family in Dublin, who had given nearly £200,000 towards making a new hospital at Southend-on-Sea one of the finest for its size (ultimately 400 beds) in the country. The surgical block comprised the newest type of operating theatres and accessories, and Lord Iveagh persuaded Sir William to accept a position on the visiting staff. With this appointment at Southend he combined an appointment at All Saints' Hospital for Genito-urinary Diseases, London, for although he was a general surgeon, or an "operating physician," he cultivated urology as what he called a "side-line." One of his beliefs was that the best urologist—and no doubt the same held good in his opinion for other branches of medicine—was the general surgeon who, as a kind of recreation, turned aside to give particular attention to one specialty. The narrow specialist outlook he could not abide.

The Ireland in which Wheeler was born in 1879 was a more than usually distressed country. To use the words of a historian of the period, during those late 'seventies it "rained outrages." But probably in the tall house in Merrion Square in which his father—who was also a William Ireland de Courcy Wheeler, and, like his son, reached the presidency of the

Royal College of Surgeons in Ireland—practised his profession no shadow of the political disturbance fell upon his childhood. This part of Dublin was still fashionable, the most elegant spectacle in its streets being the high-stepping horses of the Dublin doctors. William was educated at Trinity College, Dublin, where in 1899 he took honours in anatomy, natural science, and experimental science. He completed his education at the University of Berne and qualified in Dublin in 1902. In the following year the medal of the Dublin University Biological Association was awarded to him for a paper on "Deaths under Chloroform," possibly his first published work. He was appointed demonstrator and assistant to the professor of anatomy at Trinity College. Choosing surgery as his field he became F.R.C.S.I. when still only 26 years of age. It was at this time, in his twenties, that an unfortunate accident befell him, as the result of which he lost an eye. He overcame this disability, and although he was prevented from taking up golf, other people at least were not conscious that he suffered from any handicap in his professional work.

In 1904 he joined the staff of Mercer's Hospital, a famous Dublin charitable foundation 200 years old, to which he was attached for 28 years and was senior surgeon when he retired. He served a number of hospitals in Dublin and district—Kilkenny, Arklow, and Newcastle Hospitals, the Rotunda, and the National Children's Hospital. During and after the last war, in addition to his work abroad, he was honorary surgeon to the Forces in Ireland, donor and surgeon of the Dublin Hospital for Wounded Officers, and consulting surgeon to the Ministry of Pensions. He interested himself in hospital policy, advocating the amalgamation of the smaller hospitals, and also in nursing, being chairman of the City of Dublin Nursing Institute.

Among his manifold activities were those of external examiner to the National University and to Queen's University, Belfast, and, on this side of the Channel, to Edinburgh and Glasgow Universities; inspector of examinations for the Medical Registration Council of Ireland, and lecturer in surgery to postgraduates in the University of Dublin. In 1922 he was appointed surgeon-in-ordinary to the household of the Lord Lieutenant. He was consulting surgeon to the L.M.S. Railway and to the Orient Steam Navigation Company, and a member of the Departmental Committee on Workmen's Compensation.

In the scientific proceedings of the Royal Academy of Medicine in Ireland he took a conspicuous part and was president of its Surgical Section. A body in which he was also very much at home was the Irish Medical Schools and Graduates Association, of which he had been president. Soon after coming to London he became chairman of the Marylebone Division of the British Medical Association, and a year or two later president of the Metropolitan Counties Branch, probably the only instance of the same man having been president of an English and of an Irish Branch, for he had been president of the Leinster Branch in 1925-6. When the Association met in Dublin in 1933 he was president of the Section of Orthopaedics, and he was vice-president of the Section of Surgery at the Winnipeg Meeting in 1930 and at the Centenary Meeting in 1932.

With America he had many affiliations. He visited Crile's clinic in Cleveland, and, on at least four occasions, the Mayo Clinic in Rochester, and the brothers Mayo were his guests at his own clinic and private hospital in Upper Fitzwilliam Street. The Postgraduate Assembly of North America made him its president and an honorary member; he was also Honorary Fellow of the American College of Surgeons, a member of the consulting editorial staff of the American journal *Surgery, Gynecology and Obstetrics*, and a member of the American Editors' Association. He wrote well, with a concise—almost too concise—and original style. His *Operative Surgery*, which went into four editions, was first issued in 1918 in a form intended to be slipped into a medical officer's kitbag. His *Injuries and Diseases of Bone*, a collection of papers summing up his large experience in orthopaedics, appeared in 1928. He contributed many articles to our own and other journals and was a member of the editorial committee of the *British Journal of Surgery*.

On the outbreak of the present war he was appointed consulting surgeon to the Royal Navy in Scotland, with the rank of surgeon rear-admiral. By road, sea, and air he travelled many thousands of miles on the duties this position entailed, and was welcomed wherever he went, not only for his surgical counsel but for his unfailing courtesy and kindness. The travel, although arduous, he probably enjoyed, because for forty years he had been a great lover of motoring. He once declared that he had suffered every tribulation which could befall the motorist, even to appearance in the police-court for a technical offence, but nothing abated his ardour.

Sir William de Courcy Wheeler married in 1909 the eldest daughter of the first Baron Craigmyle, better known as Lord Shaw of Dunfermline, a Lord of Appeal. They had a son and daughter. The son is now serving as an officer in the Gordon Highlanders.

A Naval colleague writes:

Sir William Wheeler had the great gift of friendliness and an irrepressible sense of humour, so that one rarely saw him looking unduly serious and never downcast. He was a tonic to his friends as well as his patients Yet he had a keen sense of the implications of any problem with which he was confronted, while his surgical judgment showed a very nice discrimination of essentials, his operative technique was sound, and the results of his work, as might be expected therefore, were excellent. He was an inspiration to many a younger man, and out of his vast experience of surgical practice never tired of helping those younger and less experienced. Thoughtfulness for his patient was predominant in all that he did; as an example of this, only three weeks ago I watched him put a suture in a small incision he had made into a scrotum; he used a piece of silk-worm gut looped over a short piece of narrow tubing, and explained that when the suture was ready to come out all he had to do was to cut through the tube, into which one blade of a pair of fine scissors could be placed, and the patient would thus feel nothing of the cutting out of the stitch. Sir William was an indefatigable worker, very active right up to the last, and died suddenly in harness. A masterly paper on Syme's amputation and common derangement of the foot which he had written appeared only in April of this year.[1] Just over three weeks ago he had flown off to an emergency case in a fighter aircraft which made such a steep ascent from the aerodrome as to be described by some of the ground staff as "almost vertical." Sir William chuckled with delight at the memory of the experience. Not long afterwards he was climbing up a ship's side by a pilot ladder. He loved the Navy and was very proud to be serving as one of the consulting surgeons. It is distressing to think that those of us who counted ourselves privileged as his friends will no longer see his smiling countenance or hear any more of his wonderful stories. When an old woman patient of his met him a year or two ago she greeted him with, "Ah, Sir William, when you left Dublin the whole place shook." Many of us will feel with her that with his departure we have been badly shaken.

FRANK MARSH, C.B.E., Ch.M., F.R.C.S., who died at Alveley, Shropshire, on Sept. 12, was in his 89th year. He was born at Stafford and educated at King Edward's School, Stafford, and King's College Hospital. He qualified in 1877 and served with the Turkish Army in the Turco-Russian war of 1877-8. He was house-surgeon to the Stafford Infirmary and was for some years in general practice in that town and M.O.H. for 18 months. In 1886 he was appointed casualty surgeon to the Queen's Hospital, Birmingham, and was elected to the visiting staff in 1888, from which he retired after 15 years' service. He had become interested in the ear and throat specialty, then in its infancy, and was on the staff of the Birmingham Ear and Throat Hospital. He was president of the Section of Laryngology at the Annual Meeting of the B.M.A. in Birmingham in 1911, having previously served as secretary and as vice-president. For many years his opinion was much sought after throughout the Midlands, and he retained a large practice until the outbreak of war in 1914. He then commanded the First Southern General Hospital stationed at the University, and later became A.D.M.S. Birmingham District. After the war he devoted himself to the interests of the Red Cross and the County Territorial Association, and was awarded the honour of Knight of St. John of Jerusalem. He retired from practice in 1922 and spent the latter part of his retirement in Monte Carlo, but returned to England after the fall of France. In his opinions Col. Marsh was a staunch Conservative, though he took no active part in politics. He was devoted to country life and fishing, was of a gentle disposition, never uttering a harsh word. His elder son follows him as an ear and throat specialist in Birmingham.

---

[1] *Med. Pr.*, 1943, **210**, 5421.

The Services

Majors (Temp. Lieut.-Cols.) H. T. Chiswell and R. A. King, R.A.M.C., have been appointed O.B.E. (Military Division) in recognition of gallant and distinguished services in North Africa.

Group Capt. C. J. S. O'Malley, R.A.F., Wing Cmdr. H. L. Willcox, R.A.F., and Squad. Ldr. J. A. Mains, R.A.F.V.R., have been mentioned in dispatches.

CASUALTIES IN THE MEDICAL SERVICES

Died of Wounds.—War Subs. Capt. A. L. Thorp, R.A.M.C.

Prisoners of War.—Temp. Lieut.-Col. St. C. E. J. Barrett, R.A.M.C., War Subs. Capt. D. Christison, R.A.M.C., War Subs. Capt. H. W. Cowen, R.A.M.C., Lieut. E. J. Emery, R.A.M.C., Acting Major H. Henderson, R.A.M.C., War Subs. Capt. C. V. Lewis, R.A.M.C., Temp. Major A. T. H. Marsden, R.A.M.C., War Subs. Capt. J. R. Roulston, R.A.M.C., Lieut.-Col. E. MacA. Sheppard, A.A.M.C.

Wounded.—Lieut.-Col. K. H. Clark, R.A.M.C., War Subs. Capt. D. Rumney, R.A.M.C., Temp. Major A. F. Wallace, R.A.M.C.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there were large increases in the notifications of scarlet fever, 316, and dysentery, 109, but a fall of 312 in the incidence of measles.

There has been a rise of almost 50% in the notifications of scarlet fever during the past fortnight. During the week reviewed Yorks West Riding had an increase of 85 and Lancashire of 62. There was little change in the distribution of diphtheria and whooping-cough; one-fifth of the notifications of diphtheria were recorded in Lancashire. The fall in measles was general, the largest returns being in Lancashire 59, in Lincolnshire 49, and in Kent 45.

The notifications of dysentery were almost doubled during the week owing to large increases in existing outbreaks. The most important of these was in Leicestershire, Castle Donington R.D., where the cases rose from 4 to 36. Six administrative areas were involved in Yorks West Riding, where notifications rose from 13 to 43: Bradford C.B. 19, Harrogate M.B. 12. In Kent the cases went up from 13 to 24, eight areas being affected; Rochester M.B. had 9 cases. The outbreak of dysentery in Gloucestershire, Bristol C.B., which has persisted for five months, flared up, and 19 cases—an increase of 16—were recorded, bringing the total in the city to 217 for the past twenty-one weeks.

In *Scotland* there was a general rise in the incidence of infectious diseases, the only exception being diphtheria, the notifications of which fell by 20. Two areas were responsible for the increase of 41 in the notifications of dysentery—Dunbarton County with 28 more cases, and the city of Aberdeen with 19 more. The small general rise in scarlet fever continued, and the total went up by 42. In the city of Glasgow the figure for whooping-cough went up from 46 to 183, accounting for practically the whole of the increase of 151.

In *Eire* the only noteworthy change was a rise of 23 in the total for diphtheria.

In *Northern Ireland* there were 75 cases of scarlet fever, over half of these being notified in the city of Belfast.

The Week Ending September 11

The notifications of infectious diseases during the week in England and Wales included: scarlet fever 2,432, whooping-cough 1,751, diphtheria 700, measles 516, acute pneumonia 308, cerebrospinal fever 33, dysentery 201, paratyphoid 5, and typhoid 9.

Quarterly Returns for Eire

During the June quarter a birth rate of 23.4 per 1,000 was recorded, being 1.1 below the rate for the second quarter of 1942, but 2.5 above the average of the corresponding quarters of 1938-42. The infant mortality was 75 per 1,000 registered births, or 13 above the rate for the June quarter of 1942. The general death rate was 14.8, and was 0.2 higher than in the preceding second quarter. Pulmonary tuberculosis accounted for 978 deaths—33 fewer than in the June quarter of 1942 but 161 above the average of the second quarters of 1938-42. Other forms of tuberculosis caused 280 deaths—an increase of 22 on the June quarter of 1942 and 50 above the five-year average. Diarrhoea and enteritis was the cause of death of 245 children under 2 years of age; the five-year average is 133.

No. 35

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 4.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943 (a)	(b)	(c)	(d)	(e)	1942 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	43	5	20	2	2	73	3	19	1	7
Deaths		1	1				1	—		
Diphtheria	625	35	174	92	19	787	27	204	51	15
Deaths	9	1	4	2	1	14	—	—	1	1
Dysentery	238	12	136	—	—	112	10	62		—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	4	1	—	—	—	—	—	2		—
Deaths		1	—				1	—		
Erysipelas		—	32	5	—		—	49	9	1
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				98					125	
Deaths	69	13	12	20	14	52	6	15	21	6
Measles	674	37	31	8	3	3,024	295	124	22	20
Deaths	2	—	1	—	1	3	—	2	—	—
Ophthalmia neonatorum	91	2	19	—	—	94	7	24	—	—
Deaths										
Paratyphoid fever	14	—	2	—	—	13	1	5	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal*	304	18	5	2	—	379	22	3	—	10
Deaths (from influenza)	7	—	1	—	1	8	1	—	—	—
Pneumonia, primary			148	10				106	4	
Deaths		17		10	6		—		9	7
Polio-encephalitis, acute	1	—				4	—			
Deaths		—					—			
Poliomyelitis, acute	16	1	1	2	—	24	—	—	10	—
Deaths		—	—				—	—		
Puerperal fever		3	14		—	—	4	16	2	—
Deaths							—			
Puerperal pyrexia†	171	8	14	1	4	198	15	18	—	1
Deaths		—								
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,206	221	331	48	75	1,472	116	275	44	22
Deaths	—	—	—	—	—	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	11	1	5	10	3	7	—	1	7	1
Deaths	3	—	—	—	1	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,928	108	266	59	26	1,197	106	61	112	10
Deaths	8	—	5	3	—	11	1	3	5	—
Deaths (0–1 year)	293	33	54	37	35	281	33	60	36	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,504	482	480	177	118	3,465	493	491	191	120
Annual death rate (per 1,000 persons living)			10·8	11·6	‡			11·1	12·8	‡
Live births	5,959	718	904	391	271	6,002	618	816	459	270
Annual rate per 1,000 persons living			18·5	25·7	‡			16·9	30·6	‡
Stillbirths	191	22	26			200	23	38		
Rate per 1,000 total births (including stillborn)			28					44		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

A series of twelve weekly lectures on "The Psychology of Frustration and Fulfilment" will be given in Caxton Hall, Caxton Street, S.W., at 5.15 p.m. On Oct. 5, 12, 20, and 27 Miss Anna Freud will lecture on "Instinct Fulfilment and Frustration in Education." On Nov. 3, 9, 16, and 23 Miss E. N. Rooker (late principal of Dr. Barnardo's Staff Training School) will lecture on "Practical Application in Childhood." On Nov. 30, Dec. 7, 14, and 21 Prof. John MacMurray (London University) on "Social Sources of Frustration and Fulfilment." Tickets for the course, £1 (seats reserved until 5.10 p.m.), should be secured in advance from the Lecture Secretary, Provisional National Council for Mental Health, 39, Queen Anne Street, London, W.1. Single tickets (so far as accommodation permits) 3s. 6d. each. These lectures are especially addressed to those with social and educational interests.

The nineteenth Norman Kerr Memorial Lecture will be given before the Society for the Study of Inebriety on Tuesday, Oct. 5, at 4 p.m., in the Meyerstein Lecture Hall of the Westminster Hospital Medical School, Horseferry Road, S.W. The lecturer is Dr. A. Ninian Bruce and his subject is "Alcohol and Avitaminosis."

The annual general meeting of the Middlesex County Medical Society will be held at the Middlesex Guildhall, Westminster, S.W., on Tuesday, Sept. 28, at 5.15 p.m., when Dr. T. O. Garland will give an address on "Changing Medicine," which will be followed by a short discussion. Visitors, including members of the American and Canadian Forces at present in this country, will be welcome.

On Tuesday, Sept. 28, at 4.30 p.m. in the Council Room at Peter Jones', Sloane Square, Dr. J. Ramsbottom, Keeper of Botany, British Museum (Natural History), will give a talk on edible fungi, illustrated with coloured lantern slides.

A film of medical field work in the Russian Army will be shown at the Royal College of Surgeons of England, Lincoln's Inn Fields, on Friday, Oct. 8, at 4 p.m. Prof. S. Sarkisov will explain the main features of the film, and members of the medical profession are welcome to attend.

A series of lectures on national health has been arranged by the Royal Institute of Public Health and Hygiene, at 26, Portland Place, W., on Wednesdays, Oct. 13 to Nov. 17, at 3.30 p.m. Those wishing to reserve seats should apply to the Secretary at the above address.

The editor of *Transatlantic* satisfactorily answers all the questions that come to mind on seeing an entirely new periodical at a time when paper is severely rationed, and that is high praise from a contemporary. More than that, the first issue promises to achieve its object, which is to help the British public to a better understanding of American affairs and American life, but not by making propaganda. The material is presented objectively, even in the two articles on Mr. Cordell Hull and Senator Ball. Contributions like "What Geography does to America," "America and the Pacific," and "Who Speaks for America?" not to mention the excellent illustrations of "Small Town America," should do much to counter the impression engendered by the cinema that Hollywood is America. *Transatlantic* is an independent journal; it has no subsidy and is subject to no outside controls. Mr. Geoffrey Crowther is the editor, and it will be published each month by Penguin Books, Ltd., 110, St. Martin's Lane, W.C.2, price 1s. We have one complaint, and that is against the appearance of such a monstrosity as "beautician" in the caption on page 30 of the first number; it cannot be excused on the ground that it is copied from the illustration.

Manufacturers of insulin, in consultation with the Diabetic Association, have decided to standardize the colour and style of the packings so that in future type and strength will be uniform irrespective of maker. Steps have also been taken to eliminate unnecessary deterioration in pancreas during transit from cold storage to manufacturing plant. The number of diabetics in this country shows a yearly increase, and is now estimated at 200,000, but they do not all take insulin. The Ministry of Supply states that adequate supplies of insulin have been ensured both for the home market and for liberated countries.

The Ottawa Correspondent of the *Times* reports that the Dominion Government has approved expenditure for establishing plants and equipment in Montreal and Toronto for the production of penicillin. The appropriation just made will cover the cost of creating the industry and that of the production of the first 26,000,000,000 units of penicillin for use by the Canadian armed Forces. The new industry, employing 250 men and women, will come into operation next February.

Dr. Elliott Proctor Joslin, the eminent authority on diabetes, has been awarded the Distinguished Service Medal of the American Medical Association.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO.—B.M.A. and *B.M.J.*: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London*; SECRETARY, *Medisecra Westcent, London*.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Bismuth for Threadworms

Q.—*Treatment of oxyuriasis by bismuth meal would appear to be the best course, since the bismuth, by finding its way into every saccule and crevice of the intestine, is able to reach the immature forms in the duodenal mucosa; whereas other remedies, like gentian violet, only exert their effect in the caecum. But there is great variation in the dosage recommended. One authority suggests giving 1 to 1½ oz. bismuth to a child of 5, and 2 oz. to older children; the meal to be repeated once a week for 3 or 4 weeks. At the other extreme I find a dose of 20 gr. t.d.s. recommended for adults. Now what is the optimum dose? How many doses are needed for a cure? And, in the case of the larger "meals," how are they best administered?*

A.—Infestation with threadworms may be treated with bismuth oxycarbonate 120 gr. stirred up in water. A second dose is taken three hours later and a purge—e.g. calomel—is given at night. The process is repeated the next day. The dose for children from 7 to 15 years is approximately three-quarters of the above. For children under 7 it is half the adult quantity. Strict accuracy in the dosage of bismuth given by mouth is quite unnecessary because the drug is not absorbed. Diphenan or phenothiazine treatment is much more efficacious, though with the latter drug the danger of toxic effects is considerable.

Tremors: Diagnosis before Treatment

Q.—*What is the diagnosis, prognosis, and treatment in the case of a man aged 69 years who has intention tremors and jactitations of his arms and hands. He has none in repose, no rigidity, festinant gait, or mask facies, is able to exercise freely, and his mentality is normal. The symptoms were at first more in the left than right arm and hand, but have gradually in the course of years become so bad that he cannot now raise a cup to his lips steadily and has trouble in shaving with a safety razor. Any excitement makes matters much worse, and he feels trembling all over. He has taken phenobarbitone on occasions, but does not think it gave him much help.*

A.—It is quite impossible to make a diagnosis here, for it would depend upon observation of the nature of the abnormal movements and the elicitation of physical signs of abnormality in the central nervous system, which must certainly be present. Most involuntary movements are made worse by excitement and eased by repose, and many of the conditions which give rise to involuntary movements late in life are progressive, so that it would be foolish even to hazard a diagnosis. The differential diagnosis would include arteriosclerotic Parkinsonism, cerebellar atrophy, olivo-fronto-cerebellar degeneration, and many of the degenerative processes which affect the basal ganglia. This is the kind of case where an expert diagnosis is essential before prognosis and treatment are discussed. I suggest a second opinion.

Frigidity

Q.—*A married woman aged 31 is complaining of loss of sexual desire and coldness towards any form of sexual intercourse. Her periods are normal. She has one child aged 2 years and is happily married. Stilboestrol seems to have no effect. In the male I have treated this sort of case with testosterone propionate and with success, but I should like advice regarding treatment in the female.*

A.—The condition is probably psychological, and might respond to psychotherapy. Testosterone therapy in the female tends to stimulate libido by increasing the size and sensitivity of the clitoris, but large doses over a long period produce hirsutism. Incidentally, though testosterone is useful in the male suffering from organic hypogonadism, it is of no value for psychological impotence.

Noises in the Ear

Q.—*What is the physiological explanation of the sound occasionally heard in the middle ear resembling a distant steam whistle? It is observed mostly in healthy persons while resting awake, or reading, in bed at night.*

A.—It is not clear what is meant by "heard in the middle ear." The middle ear is a mechanism for collection, conduction, and accommodation. The perceptive apparatus is in the internal ear, and tinnitus originating therein either from some vascular disturbance or other lesion is generally of high pitch, sometimes corresponding to a fork of 4096 double vibrations. Tinnitus from middle-ear lesions is generally more humming in character and is often compared to sound produced when a shell is held to the ear. The sound described, if entotic, originates in the internal ear.

Pruritus Ani

Q.—*It is my impression that pruritus ani has increased in frequency lately. I have now five cases under my care. Palliative remedies—e.g., application of percainal ointment—give intermittent relief. I should be grateful for a summary of practical measures likely to be helpful, and especially for an opinion as to the value of x-ray treatment. Though one case has a considerably enlarged prostate, local causes have been ruled out and none shows glycosuria. All are in males, and in all the occupation is sedentary.*

A.—The patient should cleanse the anus after defaecation with wet and then dry cotton-wool, or, if there is much eczema, with cotton-wool and liquid paraffin or other bland oil—not with paper. He should then apply zinc cream with the addition of *either* benzocaine 2%, liq picis carb. 12½%, ol. menth. pip. 1%, phenol. liq. 2%, *or* pyrogallol 0.2%. Some prefer a dusting powder such as talc and zinc oxide, equal parts. The cream may be applied also at night and whenever required. Benzocaine acts as an irritant to a few patients but is usually helpful. *X*-ray treatment, 100 *r* weekly (80 to 100 kV, unfiltered) for 2 to 6 times, with 8 as a maximum, is extremely useful. The intervals between doses may be increased to 2 or 3 weeks towards the end of the course. Painting the perianal skin with thorium X, 1,500 electrostatic units in 1 c.cm. varnish, is a useful measure when *x* rays are not available. Thorium X must be used on the day and approximately at the time for which it is ordered. The painting may be repeated every 2 or 3 weeks as required. Injections of proctocaine are sometimes useful, but the technique of injection is important and the injections must be placed alongside the anal canal as well as under the perianal skin. If good anaesthesia is produced it may interfere for a time with perfect sphincter control. Phenobarbitone ¼ to 1 gr. at bedtime is often useful.

Vitamin C Deficiency in Peptic Ulcer

Q.—*Is there any evidence of a vitamin C deficiency in peptic ulceration? Should ascorbic acid be administered to those patients on a strict peptic ulcer dietary, or is this inclined to stimulate the gastric secretion?*

A.—Vitamin C deficiency has been detected in a number of patients with peptic ulceration, particularly if they are on a strict diet. The peptic ulcer patient is denied fruit and coarse green vegetables, which are excellent sources of vitamin C, and milk, eggs, slops, bread, and fish contain very little vitamin C. For example, 2 pints of boiled or pasteurized milk will supply only from 5 to 12 mg. of vitamin C daily (minimal requirements 30 mg.). Platt (*Lancet*, 1936, **2**, 366) describes four cases of scurvy resulting from strict adherence to special diets. The patients suffered from haematuria, purpuric rashes, epistaxis, and bleeding gums, all of which cleared up after administering vitamin C. In view of the importance of vitamin C in wound healing, and possibly for the integrity of the capillaries, patients with an active peptic ulcer, haemoptysis, and melaena of gastric origin should be given additional vitamin C to assist the healing process—e.g., 500 to 700 mg. daily—until there is a sharp rise in the urinary excretion of vitamin C, and then a maintenance dose of 50 mg. t.d.s. Vitamin C (ascorbic acid) can be administered with safety to patients on a strict peptic ulcer diet, as it does not stimulate gastric secretion in the doses given. It may be given powdered with the milk feeds. The milk serves to dilute the acid and has an excellent buffering action.

Treatment of Neurosyphilis

Q.—*I have been treating for the past year a case of neurosyphilis, but with no result. I have been using a preparation of bismuth tryparsamide and am anxious to find out if there are any better preparations.*

A.—It is not stated what is the stage or type of neurosyphilis, whether symptomatic or asymptomatic, or what are the changes in the cerebrospinal fluid. An early case of meningovascular neurosyphilis usually reacts well to trivalent arsenicals and bismuth as given for primary or secondary somatic syphilis; on the other hand, in parenchymatous neurosyphilis tryparsamide and bismuth should be given a thorough trial. Assuming that this has been done, that the patient has active symptoms which are getting worse, and that there are marked changes in the cerebrospinal fluid, "artificial fever" seems to be clearly indicated. For this there are two main choices: (1) the use of one of the various fever cabinets; (2) induced malaria. In view of the difficulty of obtaining the use of a cabinet in this country at the present time the latter is recommended. At least 12 paroxysms should be provoked, and these should be followed by further chemotherapy with tryparsamide and bismuth. The danger of the treatment should be explained to the patient, who should be carefully examined as to his fitness to stand so drastic a procedure. The treatment would of course have to be carried out in hospital and by an expert; application for the necessary material for inoculating malaria should be made to the Ministry of Health.

LETTERS, NOTES, ETC.

Treatment of Lid and Corneal Burns

Dr. W. L. PEACOCK (Slough) writes: For nearly two years I have been treating these burns by placing 3 to 5 gr. of ordinary sulphanilamide powder directly into the conjunctival sac. The effect in 24 hours on a neglected burn with chemotic conjunctiva and infiltrated cornea is miraculous. I plaster any external lid burns with more of the powder with the flat of a scalpel and apply a plain gauze pad and shell. The treatment is applied daily. There is no pain and only passing and slight discomfort. More healing takes place in a night than in a week of hot bathing, though I use this in conjunction. I think symblepharon is often prevented by this treatment.

Intermittent Claudication

Dr. JAMES MENNELL (London, N.W.1) writes: I wonder if the answer to the question about intermittent claudication (Aug. 21, p. 254) need have been so pessimistic. A large number of these cases are not true intermittent claudication at all, but a pseudo variety from which it is indistinguishable unless marked arteriosclerosis is present, as in the patient mentioned on the next page under the heading "Painful Legs in Elderly Diabetic." The pseudo variety is often due to loss of elasticity in the structures of the calf, and, if so, by raising the heels—and it often requires a 2½-in elevation—the ambit is increased very materially and pain and discomfort decreased to a negligible degree.

Treatment of Schizophrenia

Dr. HENRY ROBINSON writes: Substantially my experience confirms the reply given to the questioner ("Any Questions?" *Journal*, Aug. 7, p. 189) quite naturally puzzled over the treatment of schizophrenia. The absurd and exaggerated claims made by medical writers in the lay press (and even at times in the medical press) regarding the high rate of "cure" of this disease under electric convulsion treatment have been responsible for much misapprehension among the public as well as among doctors. The facts are that no form of convulsion therapy has any lasting effect: in very early cases it sometimes produces temporary improvement in behaviour (e.g., intentional urination and defaecation into clothing and bed may cease) and it is fairly common for appetite to improve for a time—both electric and cardiazol shocks can do this; but the benefit practically never lasts. In very rare cases a prolonged intermission happens; but as this can anyhow be expected in a small proportion of early cases, it is very doubtful how far the treatment is the cause of it. Narcosis is never of any value and should not be advised for schizophrenia, though it has, of course, a distinct place in the treatment of some other psychoses, as has also convulsion therapy.

The Compressed Curriculum

At the time of going to press with the review of the arrangements for the new session at medical schools (Sept. 4, p. 307) particulars from Westminster Hospital and King's College were not available to us. We are informed that Westminster Hospital Medical School has been able to provide increased clinical facilities at Westminster Hospital by opening more beds for general medicine and surgery and by re-establishing the maternity and paediatric units. In addition the maternity unit at Ripley is in full working order, and at Staines instruction is given in medicine, surgery, and pathology. King's College has returned to London, and pre-clinical and clinical students are able to meet once again and the clubs and societies of the Students' Union are showing great activity.

A Difficult Skin Case

Dr. E. A. MOORE writes with reference to the question and answer published under this heading on Sept. 4 (p. 317): I should advise a trial of azochloramine. It has cleared up my own foot trouble.